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Gleanings in Bee Culture

VOL. XLII. JAN. 1, 1914, NO. 1.

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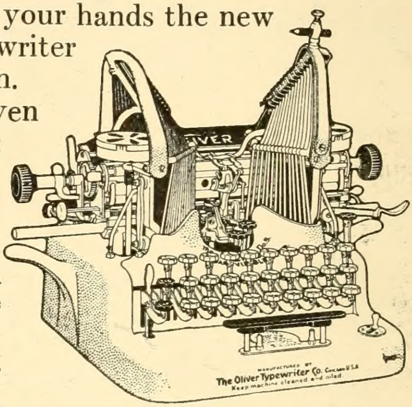

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Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, O.
A. I. Root, Editor Home Department. J. T. Calvert, Business Mgr.
H. H. Root, Assistant Editor. E. R. Root, Editor. A. L. Boyden, Advertising Manager.
Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLII. JANUARY 1, 1914 NO. 1

Editorial

Our cover picture for this issue shows the apiary and poultry-house of W. R. Bartlett, Elyria, Ohio, whose article appears on page 17.

We hoped to give at least a brief report of the New York State convention in this issue; but at the last minute we found it would have to be left over till Jan. 15.

AN EXPLANATION.

Some of our readers, after reading H. H. Root's article on imbedding wires in foundation, page 799, Nov. 15, got the idea that the wires in the frames are loose. They are not loose, but drawn taut in the frame in the ordinary way. When imbedding them in the foundation they are drawn out of alinement just enough to accomplish the result shown on page 802.

NO DEMAND FOR HONEY DURING THE HOLIDAY PERIOD.

As a general thing there is a slack time in the sale of honey during the holidays. The honey-salesman might just as well stay at home as to try to make sales during that time of the year. But he can begin again, perhaps, soon after Jan. 1. It is very necessary that he do so, because there is a large amount of honey yet to be sold before the 1914 crop comes on.

EDITOR OF "POULTRY LIFE" A BEEKEEPER.

The breezy editor of that excellent poultry journal, *Poultry Life*, Mr. Miller Purvis, is a busy man and a bee-man too. We quote herewith the first part of one of his editorials in the October issue.

> A PERSONAL WORD.
>
> If any one thinks the editor of this magazine passes his days in elegant ease, wearing a tailor-made suit and a tall collar, it would be best to revise this mental picture. The editor of *Poultry Life* gets up in the morning and works all day about six days out of seven. Just at this writing he is finishing the task of digging three carloads of potatoes that he and one other raised this year. He also takes care of a rather sizeable flock of fowls, enough bees to make it interesting, and an orchard that is going to make him rich enough some day so that he can afford to throw his typewriter into an irrigation ditch, and forget that he ever sat up nights spoiling white paper for the purpose of saying things to the public.

Here's long life and success to this fearless writer who is a poultry-man, fruit-man, and last, but not least, a bee-man as well.

A. I. ROOT ON THE SUBJECT OF WINTER NESTS.

In this issue, page 6, our correspondent, Mr. Byer, believes that A. I. Root is not a supporter of the winter nest as advocated by his son in later years. He refers to page 863 of our issue for Nov. 1, where A. I. Root is mentioned as favoring combs of sealed stores of 15 lbs. each, placed in the center of the brood-nest. Apparently this might look as if he were in opposition to the practice advocated later in Gleanings; but if Mr. Byer will turn to the top of the next page, 864, he will see that A. I. R. recommended cutting circular holes in the combs near the top-bars for a passageway. This would also provide a winter nest, if we take into consideration the fact that A. I. R. has always been an advocate of putting the bees into winter quarters *early*. After all, if bees are given solid combs of stores early in the fall they will soon make a winter nest of the kind that we recommend in December when cold weather sets in.

THE IMPORTANCE OF UNIFORMITY IN MAKING MARKET QUOTATIONS.

Our Colorado correspondent, Mr. Wesley Foster, on page 8 of this issue, calls attention to the lack of uniformity in the market quotations in the bee-journals. For instance, he says, "Some of the reports are from houses selling to retailers, some selling to wholesalers, and some, if not all, probably selling to both." He then goes on to give specific instances of how Cincinnati makes prices on honey going to retailers, and how Kansas City gives jobbing prices. If the producer does not know on what basis these quotations are made he is liable to be misled. We are addressing a circular letter to all those who quote prices, calling attention to this lack of uniformity, and asking if a more uniform scheme can not be adopted. In the mean time, it would be wise for any

MAY 1 1915

beekeeper, before he consigns his honey, to secure prices by mail, based on sample or samples.

PRICES ON HONEY EASING UP AS A RESULT OF SOME HEAVY LATE SHIPMENTS.

We have time and time urged the importance of selling honey, especially that in the comb, *early*. The latter should be sold, as far as possible, in the large jobbing centers in September and October—certainly before the holidays. After that time it is liable to granulate or break down during shipment, and, what is worse than all, carload shipments of comb honey after January 1 often have to meet markets already overloaded with the product. The situation this year is not as good as it might be. Numerous carloads of honey have lately been coming from the West, and in some cases have been dumped on to markets already congested. If these same shipments could have been delivered two or three months earlier, when consumers are calling for new comb honey, better prices would have been secured. Too many times producers have gotten the impression that, by holding off, prices will become firmer. In a very few instances (and very few they are) delays have been to the advantage of the beekeeper; but such delays are always exceedingly dangerous, and usually there will be a slump in prices along toward or shortly following the holidays. It is difficult to get them back again, because buyers, fearing that their comb honey will granulate on their hands, will begin to cut prices.

While the situation is not quite the same with extracted honey, yet the market on liquid honey will generally ease up along about January.

This past year has seen an unsual production of clover honey, both comb and extracted; and had it not been for the shortness of the California crop, prices would have been completely demoralized. As it is, delayed shipments of Western comb honey, and extracted also, are being dumped on the Eastern markets, when they are in no condition to receive them. It is impossible to maintain prices under such conditions.

Another thing that has eased the market somewhat this season is the open winter we have been having. Buyers invariably claim that honey sells much better during a snug cold winter, and there is a reason for this. Carbohydrates (fats and sugars) are heat-producing. During cold weather our systems crave sweets. Neither candy nor honey sells during mild winters as they do in cold, hence it is not surprising that there has been less of a natural craving and demand for honey this winter.

One heavy clover year is not likely to follow another; and the probabilities are that prices will equalize another season. In the mean time a lot of comb honey now on the markets may become granulated, and granulated comb honey, if sold at all, must go at a big sacrifice.

EUROPEAN FOUL BROOD NOT THE TERROR IT ONCE WAS; HOW IT IS ELIMINATING BLACK BEES.

We have lately been in districts where this disease has held sway for a few years back. But the foul-brood inspectors tell us that it is not as difficult to handle as it was formerly supposed to be. In the first place, it has been clearly demonstrated that a vigorous strain of Italians will hold it in check, and often cure it. Some even go so far as to say that where this strain is used exclusively there need be no fear that the disease will make any headway, and probably never get even a start. There are numerous instances where Italians are free from this disease, notwithstanding other yards of black bees within flying distance are rotten with it. Indeed, it is becoming increasingly apparent that European foul brood will ultimately clean out the black race entirely. It has already done so in many sections.

Another thing, the Alexander treatment, or a modification of it, is coming to be more and more thought of for treating European foul brood. While it fails in some cases, it is very clear that the shaking treatment fails quite as often with the same disease. In this connection one will do well to read an article on it by E. F. Bender, in the last issue, who only voices opinions concerning this disease that are beginning to be accepted in many parts of the United States.

Taking every thing into consideration, the up-to-date, progressive, careful beekeeper need not fear European foul brood providing he keeps a vigorous strain of Italians, and is otherwise careful to avoid infection by buying indiscriminate lots of bees. Indeed, we have heard that in some sections European foul brood has been a blessing in disguise in that it has eliminated entirely the careless, haphazard beekeepers who have always been a thorn in the flesh of the man who makes beekeeping a business. It is this don't-read-the-papers class who dump their honey on the market in all shapes and at prices that are ridiculously low.

In this connection it should be clearly understood that European foul brood is very different from the American type of the disease. While combs can be saved, many times, when treating European foul brood, there is no substantial proof yet advanced to show that they can be saved when affected with American foul brood. While a vigorous strain of Italians is more immune to this disease, yet unless one exercises due precaution American foul brood can cause fearful havoc among them.

On the other hand, it may be said that the shaking treatment, if care is exercised, is generally efficacious in treating American foul brood.

BROOD-REARING IN ONE OF OUR BEE-CELLARS.

ELSEWHERE in this issue (page 27) we refer to certain experiments in giving bees hard candy as a winter food. Our Mr. Pritchard, who is looking after our bees in the cellar, reports (Dec. 27) that in the upper cellar (under the machine-shop) the bees are breeding very heavily. The temperature stands at about 52. There will doubtless be considerable increase in the strength of the colonies in this cellar. There are very few dead bees on the cellar bottom. The bees are quiet, but brood-rearing is going on at a lively pace. This is probably due to the fact that the moderate weather before the bees were put into the cellar, and the candy feeding, as explained elsewhere, had started brood-rearing outdoors. The disturbance incident to putting the bees in the cellar, and supplying them with hard dry candy, has stirred them up still more, with the result that brood-rearing is going on as heavily as ever, even in the cellar. Queens are laying, even in the colonies having nothing but natural stores.

It will be remembered that we had one yard of bees that we put in the cellar a year ago last December that was in poor condition. The colonies were weak, and we put them inside, as we felt sure they would die if left outdoors. We supplied some of them with hard candy; but those with candy and those without began to breed. The bumping on the sled in moving had stirred them up, so that the bees were clustered all over the front of the hives when they were placed in the cellar. Naturally one would think this would spell disaster—that the bees would never quiet down again, and that the result would be dysentery and death. But these bees began to rear brood, and *kept it up all winter;* and when we took them out in the spring they were strong colonies instead of being two and three frame nuclei as when they went in.

Well, now the same process is going on this winter in the upper cellar, for we just overhauled the bees and found brood in all stages in all the colonies, and here it is just the close of December. Brood-rearing may be going on in the other cellar, but we have not yet investigated to find out. More anon.

BEES AND POULTRY; THE COMBINATION OF THE TWO VS. EITHER ONE ALONE.

IN this issue will be found considerable matter from beekeepers who are also poultry-keepers, discussing the combination of bees and chickens, and the poultry business as a sole means of livelihood. Some interesting evidence is produced, showing that the combination of bees and poultry goes well together. When the work is most active among chickens in the winter and early spring, the bees are dormant, requiring little or no attention; and when the work is most pressing among the bees, in the late spring, summer, and fall, the conditions are such that the chickens can to a large extent find their own feed—especially so if they can have the range of a yard or a farm.

One fact has been brought out; and that is, that the average farmer can raise eggs and chickens for market cheaper than the man who makes the business a specialty. When chickens are confined in yards they must be fed regularly balanced rations, and this feed costs money. On the other hand, when the hens have the run of the barnyard, or the whole farm, in fact, they can find their own feed. The bugs and insects, many of them injurious, are numerous enough in the ground to make up an important part of their diet. Under such conditions the poultry business will yield comparatively large returns. It is during the warm part of the year that bees require most attention.

We know of numbers of people who run a small farm in connection with bees. On this farm they have a large number of chickens and 200 colonies of bees, say. The whole combination, especially if not remote from a good market, will yield good returns.

Apparently, from the testimony given in this issue, keeping more chickens is not as profitable as keeping more bees. There are hundreds and hundreds of beekeepers who have anywhere from 300 to 500 colonies, and not a few who have as many as a thousand or more. The fact that these men have been in the business, are staying in it, shows they are making a living; and if we may judge by the comfortable homes, by the automobiles and other home conveniences that some of these large honey-producers have, the business of honey production on a large scale is more profitable than the exclusive business of producing eggs for market in a large way.

Mr. J. E. Hand, on the other hand, a type of the other kind, is not only a successful beekeeper but a successful poultryman. He is running a combination of the two, year in and year out. While he deals with only the poultry side in this issue the readers of this journal know him best as a beekeeper.

There is another phase of this whole question; and that is, the average backlotter can usually keep a dozen good hens in a small yard. The scraps from the table, especially meat scraps and ground bone, will go a long way toward the maintenance of the flock. If they can have all the cuttings from the lawn-mower from the front yard, they will get along very well, providing they have with the table scraps mixed grain which they should always be able to get during the daylight hours.

A small number of chickens in the back yard will yield not only a fair return but afford a large amount of pleasure to the good woman of the house; and last, but not least, eggs that she *knows* are fresh.

The prices that eggs are bringing now in market, especially during the winter months, and the securing of winter eggs when no one else has them, should be carefully considered. Ordinarily that means early chickens —much earlier than the average man will have them.

FOUL-BROOD QUARANTINE IN IMPERIAL CO., CAL.

In the early part of last year, as noted in Gleanings at the time and later, the supervisors of Imperial Co., Cal., passed an ordinance prohibiting the shipment of bees into the county from other counties of the State or other States, without first giving notice of such shipment within 24 hours after their arrival. This ordinance in case of violation places a penalty of fine and imprisonment, not only on the representatives of the railroads, but on the shipper himself. It appears to go further, in that it gives the foul-brood inspector authority to prevent the landing of bees (whether diseased or not) in the county from districts where disease of any kind is *supposed* to exist.

On Sept. 11 the foul-brood inspector, Mr. A. F. Wagner, in the exercise of authority given him by this ordinance, declared a quarantine against the shipment of any bees into the county. See Gleanings, Oct. 1st, p. 665. The inspector has evidently had his troubles. Two wagonloads and one carload of bees have been shipped in, and Inspector Wagner ordered the bees to be shipped back immediately. The railroad company demurred, but finally took them and carried them out of the county. Suits and counter suits for damages have been threatened. Whether they have been carried into court or settled, we have not been informed.

In the last issue of the *Western Honeybee*, published at Los Angeles, a full text of the ordinance and quarantine is given. In an open letter to the Board of Supervisors of Imperial County, Mr. J. Edgar Ross, one of the most extensive beekeepers in the county, refers to this ordinance as "a gross injustice to the Imperial Valley immigrants." He says he has never brought bees into the county, and never expects to. Among other things he says:

> The key to the entire situation is simple. A few extensive beekeepers now located in the valley wanted to put up a high board fence to keep others away from what they know to be a good thing. There might be some plausible excuse for this if the valley were, as they claim, already overstocked with bees. That this is not the case is abundantly proven by the rate at which nearly all beekeepers in the valley are increasing the number of their colonies. As a matter of cold fact, hundreds of tons of honey are going to waste in this valley for the simple reason that there are not enough bees to gather it. The interests of my pocketbook, as any one can plainly see, lies in silence, for I have bees for sale, and bees are worth three times as much here as they can be bought for on the coast; but I do not write my principles with a dollar-sign, and am decidedly opposed to this dog-in-the-manger policy.

Of course, Gleanings has taken no sides in this matter. Although we have been advised that trouble was brewing we thought best to say nothing about it, hoping that the case or cases would be settled out of court. We have received intimation that one case has been "settled," but on just what terms, and how, we are not as yet advised.

The situation, in a nutshell, resolves itself down to this: There is European and American foul brood in some counties of California. The beekeeping area in Imperial Co. is isolated inside of a desert; and under ordinary circumstances disease will not get into the valley unless shipped in with other bees. Its beekeepers, desiring to protect themselves from the importation of bees from infected counties into their county, apparently prevailed on the board of supervisors to pass the ordinance, which they did a year ago. But there seemed to be some dissatisfaction over the action of Inspector Wagner in enforcing the ordinance; that he was unfair in letting some in, and not others. As nearly as we can ascertain, some beekeepers and perhaps the majority in the county are in favor of the ordinance; but one of the most extensive ones among them, Mr. Ross, believes it is unjust and unfair, and he proceeds to pay his respects to Mr. Wagner (the inspector) and to his colleagues, in no uncertain language, in the *Western Honeybee* for December.

Mr. P. C. Chadwick, in his department in this issue (see page 7) appears to feel that the ordinance will act as a boomerang on the beekeepers of Imperial Co. if the time ever comes when they desire to move bees into some other county.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

HAPPY New Year!

HEY! Mr. Editor, you nearly argued me into painting hives. After reading Doolittle, p. 842, I'll let 'em stay unpainted.

I CLAIM only part credit for the 266 sections per colony, 1913. Most of the work was done by a woman—a hustler—Miss Emma W. Wilson.

C. F. BENDER's article on European foul brood, p. 897, shows plainly he's been there. The most comforting item is that he has not seen a foul cell for three years, and yet he has kept his old combs.

L. S. EDISON, you ask, p. 864, whether to put frames of foundation in the center or side of the brood-chamber in April. You can do either; but the best place is to leave them in the shop till a month or two later.

A SPECIAL advantage of the motor-truck for out-apiaries is that your sympathies are not drawn upon as with horse flesh, when you want to hurry home without stopping to rest, or crowd two days driving into one.

LATELY a man told me that the bees in the middle of the cluster in his hives fanned lively to get up heat when too cold. Is that the orthodox belief? [That is certainly not the orthodox belief, and, what is more, we do not believe it is true.—ED.]

A. I. ROOT, after reading what you say, p. 911, I feel proud to say that, with a single exception, I have found the toilet rooms of all the public institutions in Washington scrupulously neat and clean. Moreover, lavatories are furnished with hot and cold water, soap, and individual paper towels, *entirely free.*

J. E. CRANE has my thanks for something I never saw before—a piece of comb with worker-cells on one side, five to the inch, and drone-cells on the other side, four cells measuring 1½ inches. A plain case, with no bend in the septum. [This is quite a remarkable case. Has any one else seen any thing like it?—ED.]

YOU never can count on weather. At Medina you were caught Nov. 9 with hives 3 feet under snow. I was caught the other way. Nov. 11 I left home feeling that the bees were safe in the cellar; but immediately a warm spell turned up, such as never was known before, and I almost dread to learn what shape I'll find the bees in when I reach home Dec. 19.

IN *American Bee Journal* for 1861, 17 days is given as the time from the laying of the egg to the emergence of the young queen. That was, I think, on the authority of Dzierzon and Berlepsch, and was, pretty surely, from rearing queens in not very strong nuclei. Later, 16 days was counted the time—3 days in the egg, 6 days feeding, and 7 days sealed up. I think those are the generally accepted figures to-day, and they are so given, GLEANINGS, p. 567. But Cowan, and later the A B C and X Y Z, reduced the days of feeding to 5, making the time from the egg to virgin 15. In order to learn something about it from the bees themselves I made some experiments, not with nuclei, but with a full force of bees. I got some positive results, although not very exact. In one case, instead of 9 days from the laying of the egg to sealing, it was not more than 7 days, 20 hours, 45 minutes, with a possibility of a good bit shorter time. (In the course of the years I have seen so many small larvæ in sealed cells that I am inclined to believe that cells are often sealed after four days of feeding or less. I suspect that the bees are not very particular about the time of sealing up; but at any time after an abundance of pap has been placed in the cell, whether the time be more or less, they say, "There, now, you little pig, you have more than you can cram down, and you may as well be sealed up now as any time.") In this case the full time from egg to virgin could not have been more than 4 hours over 15 days, with a possibility of being more than 4 hours under that time.

Aug. 5, 3:05 P. M., I gave a comb to my best queen, and after 2 hours gave it to queenless bees. Aug. 19 I put the 4 cells in a nursery. Aug. 20, at 1:05 P. M., no queen was out of its cell. At 3:05 one was out. At 5 no other was out, but another was out at 6:10. I did not look again till next morning at 5:15, when I found the remaining two were out. The longest possible time of that first queen was exactly 15 days, with a probability of 2 hours less, and a possibility of 4 hours less. The time of that second queen ranged from 55 minutes less than 15 days to 3 hours 5 minutes more than 15 days. The two remaining queens must have been at least a few minutes longer, but there's no telling how much longer.

Here's a chance for some of you ambitious youngsters to give us some more exact figures. Get your eggs laid within a shorter period than two hours, and then make more frequent observations than I did.

Notes from Canada

J. L. Byer, Mt. Joy, Ont.

I have just read with interest the plan of wintering given by A. I. Root many years ago, and referred to on page 863, Dec. 1, by L. M. Brown. While there must be some mistake in saying that the four combs the bees were to be wintered on must weigh about 15 pounds each, the fact, I see, is that A. I. R. seemingly did not place as much stress on the necessity of a "winter nest" as does a son of his at the present. If I am wrong in my understanding of the plan as given, please correct.

* * *

I understand that Dr. Miller has a crop for 1913 that averages over 260 sections per colony. Accept heartiest congratulations, doctor, for such a wonderful record. We thought that the crop was fair here in Ontario; but after that report we have come to the conclusion that we got only a taste of honey after all. However, there is no envy on the part of this scribbler; and to my mind such a crop means a combination of a wonderfully good honey-flow, wonderfully good bees, and last, but not least, *wonderfully good management.*

* * *

THE EFFECT OF THE WARM WEATHER.

"The mildest November on record" says the report of the observatory at Toronto in regard to the weather of Ontario during last month. No frost during the first week of December in our section; so this is another record. To-day, Dec. 8, it is colder, and we are having our first light fall of snow. How this continued mild fall weather will affect the bees is a question I have been asked frequently of late; and, frankly, I have no certain answer to give to the query. Most of the time it has not been warm enough for bees to fly much, and I am not fretting very much as to any bad results that may follow. At the Cashel apiary there may be an exception, as there the bees are surrounded on the north, east, and west by swamp; and during many of the November days a trip to the yard would show hundreds of bees sipping water from the bog, only a few feet from the bees. Bees carrying water freely generally means brood-rearing, and naturally I will watch with interest as to how these bees winter.

SNOW COVERING THE HIVES.

This matter of snow being left around the hives is a live question in all our northern locations where we are apt to get lots of the beautiful. Snow falling in "season" can pile up just as much as it likes, and I will leave it around or over the hives with no fear of bad results. But *my* hives all have quilts over the frames, and the outside cases have a space under the gable between packing and roof. If the bees had sealed covers on them instead of quilts I might have to be more careful of the snow; but I have no use for the sealed covers in our latitude, so the snow does not bother. As to falling in "season," I mean any time after the middle of December, and I want no deep snow over hives after late in March. That fall of snow you had in Medina was unseasonable, and I do not wonder that it threatened bad results if it had been left piled over the bees. After brood-rearing is well on in the spring it is very dangerous to allow hives to be covered any length of time, particularly if the old snow has been taken away and another fall of heavy wet snow should come and cover the hives to any great depth.

* * *

THAT WHITE HONEY IN ONTARIO.

See here, friend E. R., you are going to get into trouble for insinuating, p. 836, Dec. 1, that the water-white appearance of our clover honey is due to the admixture of thistle honey. I am told that thistle honey is very white; but I can give no positive proof personally, for the reason that I am not sure that I ever had any pure. While some sections that are poorly farmed may have enough thistles to make a slight showing in the surplus, such places are in the minority. In our home locations I think the editor could carry in a few armfuls all the thistles he could find in the alsike within reach of our bees, so you can see that thistles cut no figure in our case. Up at the Lovering yard there are more thistles; but the honey there is not as white as we get at home, owing to the presence of some other plants that do not grow in York Co.

By the way, I am informed that the editor took such a fancy to our Canadian honey that a policeman actually caught him with a bottle in his pocket—taken, presumably, from the honey exhibit we had at the big show. After an investigation he was let go on suspended sentence, owing to the nearness of the holiday season.

Beekeeping in California

P. C. Chadwick, Redlands, Cal.

The *Western Honey Bee,* as edited by Mr. J. D. Bixby, is in keeping with the quality of work of the former editor, Mr. Geo. L. Emerson. Mr. Bixby will doubtless make himself fit into the position admirably, assuring the success of the journal, with proper support. There was no fault to find with Mr. Emerson, who, to the writer's personal knowledge, made a sacrifice in his own business to launch the journal successfully. Success to you, Bro. Bixby.

* * *

I quote the following from *Orchard and Farm:* "A carload of bees taken into Imperial County from San Diego County, in defiance of the quarantine on bees from that section, were ordered returned to the consignor." In the natural course of events there will be some beekeepers who will want to get out of Imperial County some day, and the task will be made no easier by the attitude they are now assuming. Self-protection gives every one a right to protect his own interests; and if these bees were diseased the action was right and proper. But the chances are they were not diseased or they would never have been shipped.

* * *

The year 1913 has closed, leaving a feeling of no particular regret to the beekeepers of California, especially those of the southern part of the State. It was a most disastrous season for the most of us. Some of the favored few in the orange district made a fair crop, but they were the exception and not the rule. In the alfalfa districts a fair to good crop was secured, the condition there being about normal. Disease has spread in some localities at a rapid rate, black brood (European foul brood) principally. This has added to the burden of some, as it has been a year in which fighting the disease has been very difficult, owing to the almost entire absence of fresh nectar. The rains have added a new hope to our future, so we hope and trust that the season of 1914 will bring new life and courage to our beemen, as well as financial gain. The writer wishes a prosperous new year to those who have stood by their bees, giving them all the attention consistent with their time and means.

* * *

So this is the "Bee and Poultry" issue. Well, I was never much of a "hen granny," and my success with chickens was never to be bragged about. Once in my boyhood days I went out to set a hen on Friday. My mother told me I would have no success if I set her on that day of the week. Mother was not superstitious, but liked to have some fun with the boys once in a while. I went ahead and set the hen just the same. In about a week my mother came running down to the hen-house to see what was causing the commotion among the hens, and she arrived in time to see the last egg going after the hen that was set on Friday. She had a good laugh at my expense, saying, "I told you so." My answer was that a Leghorn hen did not have sense enough to sit, any way.

Let me tell you something of my wife's success with poultry, especially with turkeys on a city lot. There are many people who think a turkey must have at least 160 acres to run on. I once thought so; but Mrs. C. has proven to my satisfaction that I was mistaken. For the past three years she has kept a pair of these fowls for breeding purposes, allowing the hen to lay a full laying, then hatch and raise her own brood. This year she hatched 14, successfully raising ten of the brood, which is about as good results as one ever gets with turkeys. But she knows how to care for them, which is half the battle. Two or three days before time for the eggs to hatch, there is always a noticeable decrease in the amount of milk the family cow is furnishing the table. Oh, yes! clabber milk for the turkeys—no further arguments needed. The chief food they are given for several weeks is clabber cheese and green onion-tops cut fine and mixed with the clabber. My! how they grow if kept warm and dry! and the old mother hen knows how to do that.

But how about chickens? Mrs. Chadwick does well with them, but takes more interest in the turkeys. We keep only the White Plymouth Rocks, for the reason that we have an exceptionally fine laying strain of this breed, from which we get eggs the year round. There are other breeds of chickens that are good layers, but the objection with us has been to get a strain that not only lays well, but that is also of some value for the table. For a general all-round chicken, the breed and strain we have can not be excelled. Just the other day Mrs. C. sold three *old* hens for 20 cts. per pound, for which she received $3.60. It is not so much the breed as the utility of the strain that is to be sought.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

Wanted—a real good method of gathering sweet-clover seed. I fear the beemen are neglecting this plant when the seed is so valuable, and the bloom so fine for bees.

* * *

THE MARKET QUOTATIONS.

It has long been somewhat of a puzzle to me just how to interpret the honey quotations given in the bee journals. It seems they do not record very clearly the rise and fall of the honey market. This is easily explained by the different standards of grading used. For instance, a dark comb honey would sell for several cents a pound more in some markets than in others. Take the quotations given in GLEANINGS, Dec. 1, as an example. Some of the reports are from houses selling to retailers and some selling to wholesalers, and some, if not all, probably selling to both. Some of the jobbers sell to other jobbers who sell to wholesalers who sell to retailers who sell to consumers who eat the honey that the bees made!

The reports from Boston, Indianapolis, and Cincinnati are undoubtedly the quotations at which the honey is going to retailers. The Chicago report of Mr. Burnett shows conditions there very well. All sorts of prices have been asked and secured. Some consignment honey from the West having been sold very low, the market has been badly hurt. This price-cutting, I believe, has been done by houses that are not especially interested in building up the honey business.

The Kansas City report gives the jobbing price, the wholesale price ranging ten to twenty per cent higher than this. When I was in Kansas City the lowest price I was quoted on any No. 1 comb honey by the wholesale fruit-houses was $3.35 a case; the highest I was quoted was $3.75, which was about November 15. Kansas City was very heavily supplied with comb honey at that time, but it was moving out at a good rate.

The best price I see in all the quotations is 17 to 18 cents in a jobbing way at Zanesville, Ohio. The retailer must pay 20 to 21 cents wholesale for this honey, which is the highest I see in all the quotations.

Comb honey sells in Denver to the retailer at $2.50 to $3.00 a case of 24 sections, with some shading from this price where the beemen sell direct to retailers.

The St. Louis report gives the conditions about as I found them when I was there late in November. Wholesale fruit and produce men in Kansas City handle considerable honey, while in St. Louis they do not handle it to speak of at all, leaving the honey business for the wholesale butter, egg, and cheese dealers and wholesalers who have less perishable produce than fruit.

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POULTRY-RAISING IN TOWN DOES NOT PAY.

The writer's experience with poultry has not been very satisfactory. There are several causes for this: First, I am not situated so that feed can be bought as cheaply as it should. During October and November the feed bill was $15.65, with only about six dozen eggs to show for it. Our flock averages about 170 eggs per hen per year, which, I am told by Mr. Vaplon, poultryman for the Colorado Agricultural College, is above the average.

We have been unable to dispose of all the eggs throughout the year direct to consumers, as should be the case. If I were on a small farm where I could let the hens run, I believe a flock of about a hundred hens would take care of the grocery bill. I have averaged about $1.50 a year profit per hen, not figuring any thing for labor. Figuring labor at 20 cents an hour, the poultry has faced a deficit of about $75 per year. I believe the city or town man can not profitably keep poultry on the meat and egg basis if he buys feed at market prices, sells his eggs at market prices, and figures his time at even starvation wages. I will have the poultry-men of our Agricultural College back of me, I believe, in this statement.

The place where chickens pay is where they can pick up half or more of their living—where they can run. The commercial poultry-plants succeed through getting above the market prices for eggs and selling fancy stock at high prices. There are very few successful commercial poultry-plants in the West, for the reason that they can not compete with the farmer's supply of poultry and eggs which is produced so economically. When I move to a farm I want a nice flock of chickens for profit; but in town I want them only to furnish a few eggs and a chicken occasionally for the table.

I hope this is not too hard on poultry-keeping, but I believe it fairly defines the limits of the business.

Conversations with Doolittle

At Borodino, New York

THE BEST BEES.

"You have been telling us different things about breeding, etc., but you have told us little if any thing about which kind of bees are best suited for different kinds of work. What I want to know is whether all bees are alike suited for comb-honey production, extracted-honey production, or for the production of wax. If there is a difference, which are best suited for these different kinds of work?"

"I am well aware that volumes have been written on the subject of the best bees, each writer having his own ideas; but many do not have the matter fully settled in their own minds, even at the present time. Only recently one of our best apiarists told me that he was not fully persuaded that the Italians were better for any purpose than the blacks."

"But you do not think that there are many beekeepers who will agree that the blacks are as good as the Italians for any purpose?"

"There are two points in which the blacks excel, as I think is acknowledged by most of those who have experimented closely. The first is, they cap their section honey whiter than any others; second, they use more wax in doing such capping. And here you have an answer to working for the production of wax. It is doubtful, even at the present high prices of wax, whether it is as profitable to work for wax, under any circumstances, as it is for either comb or extracted honey; but if trying the experiment I would certainly choose black bees for such a test. At times of a good honey-flow, with little room for comb-building, these bees will plaster things over all about the hive with little bunches of wax, something similar to the way in which Caucasians will plaster up the entrance to their hives with a mixture of pollen and propolis."

"But how about extracted and comb honey production?"

"If I were producing comb honey altogether, I would procure a good queen of the golden variety, rearing all queens from her, and allow them to mate with any drones they might chance to meet, the most of which, without doubt, would be from an entirely different blood from themselves, which would give a direct cross. Such direct cross always gives the greatest vigor; and in reference to your question as regards the best bees for comb honey I should not care one cent whether the young queens from such a mother mated with drones from black or hybrid stock, as all my experience goes to prove that thoroughbred golden Italian queens, mated to drones from either black or hybrid mothers, give bees equal to the very best for comb-honey production. But if I could conveniently hinder such mating I should prefer not to have these queens meet drones from young queens reared from imported mothers."

"How is that? Do not many of our best beekeepers claim that queens from imported stock give the very best honey-gatherers?"

"Yes, and undoubtedly such claim is absolutely true. It is not because they would not give bees just as vigorous and of just as good honey-gathering quaities; but for the reason that, as a rule, workers having such imported blood in them do not cap their honey nearly so nice and captivating to the eye as do those having more of the golden, hybrid, or German blood in their veins. There is no one thing that helps to dispose of a crop of section honey to so good advantage, nor so promptly, as do the nice white and smooth cappings of the combs. Have you never noticed that all *fancy* honey quotations are based on the looks of the cappings to the combs, and that honey quality takes second place in this matter?"

"That is right, now I come to think the matter over. But are not such bees as we have just been talking about the best for extracted honey also?"

"Well, hardly. They may gather just as much honey, but they use more of that honey in secreting wax, and wax production plays no important point in the production of extracted honey. Dark or leather-colored Italians, those nearly related to imported stock, often cap their honey with so thin a covering of wax, and that thin covering placed so close that it touches the honey, causing section honey to have such a greasy, watery appearance that it takes a grade much below fancy in the market, even with the same good quality as fancy in the combs. Now, while this is all against comb-honey production, it is in favor of extracted honey, for nice capping to the combs is never thought of in an apiary devoted to extracted honey; hence the less honey that is consumed for the secretion of wax, the greater yield of the extracted article. For this reason, were I working exclusively for extracted honey I would select the darker Italians,

Continued on page 34.

General Correspondence

COMMERCIAL EGG PRODUCTION

A Resume of the Business from the Question of Building to the Hatching and Feeding of the Chicks

BY J. E. HAND

From the dollar-and-cent point of view it is, perhaps, advisable for the expert beekeeper to concentrate his capital and energies upon his chosen profession. There are conditions in human existence, however, that are infinitely more desirable than the mere making of money. "Variety is the spice of life;" and the human mind becomes broadened and invigorated by branching out upon different lines of thought and action.

Beekeeping is not a year-around occupation, hence a beekeeper on even a quite extensive scale may relax the tension upon his mind, broaden his views, and increase his finances, by branching out and taking on a side-line winter occupation. Among all rural industries, perhaps none is so well suited for this purpose as commercial egg production, since it is largely a winter occupation, though virtually an all-the-year avocation. While poultry-keeping alone is by no means the money-making bonanza or the highway to wealth that it is too often painted, yet with intelligent management it will give good returns for the capital and labor expended, including a reasonable profit. And you don't have to wait six months or a year for it; for after the plant is in operation, with proper care and attention to every detail commercial egg production will yield a daily and hourly income, rain or shine, summer and winter, with no off seasons.

You carry out the feed in the morning and bring in a basket of eggs at night to pay for it, including a profit commensurate with the investment, providing you attend strictly to every detail of your occupation. Born and reared on a farm, and familiar with every branch of rural husbandry, I know of no line where more skill is required, or where a little neglect is so quickly felt in the profits returned as in the poultry business; nor do I know of any that will yield as prompt returns for extra care. Let no one who may read this article delude himself with the idea that he can, without any previous experience or knowledge of the business, step into a profit-yielding business of commercial egg production on an extensive scale—a business where vastly more science and skill is required than in the production of fancy section honey and the control of swarming.

A beginner should start with 50 to 100 pullets, and increase his stock in proportion to his experience and ability. I emphasize these points because it is the purpose of this article to help beginners instead of leading them astray by painting the situation in roseate hues to foster hopes and ambitions that can be realized only upon the conditions herein mentioned. This does not necessarily imply a constant grind of ceaseless toil and arduous labor, but it does demand a constant supervision and strict attention to the most minute details of the business.

The first thing to be considered is the location and buildings. It is very desirable to have the ground sufficiently undulating to admit of ample surface drainage. A side hill sloping south has advantages along this line. If in an orchard, all the better for the poultry as well as for the trees, for the hens will scratch the ground and pick up innumerable injurious worms and insects, and in return for the favor the trees will provide protection for the fowls in winter and refreshing shade in summer, all of which are important factors. While the buildings need not be expensive, it is imperative that they conform to sanitary rules, as well as to conditions that favor winter egg production; for pure air and cleanliness means health to the fowls, and the healthy hen is the one to lay eggs in winter, when they bring the highest price, and we should assist her by imitating nature and making conditions as near normal as possible.

While we do not claim that the system herein outlined is superior to all others, we feel justified in recommending it in preference to any other for two reasons. First, it has been uniformly successful with us, and we are not sure that other methods would be. Second, it is practically the same system that is practiced by the leading poultry-men of the country, therefore we don't feel justified in confusing the beginner with a multitude of systems and innumerable visionary theories. So please don't consider it egotism that leads us to outline one particular system instead of branching out upon unexplored territory.

It is advisable to have the laying-houses in a continuous row, extending in a line east and west, and fronting south. This is imperative, since the warm and penetrating rays of the sun reflected through the windows dispel the gloom of an otherwise dull monotony, and bring happiness and content to the inmates, even in zero weather, as will be attested by their scratching and singing, likewise by a better filling of the egg-basket.

It should be not less than 16 ft. wide, and of sufficient length to house the number of hens desired, for no one has as yet placed a limit to the number that can be successfully operated in one continuous room unbroken by partitions. So long as correct sanitary conditions are rigidly maintained it is safe to assume that 1000 hens in one flock will give as good results as a flock of 100; and the minimizing of labor in caring for large flocks is an important item that swells the poultry-man's profits.

The building is sheeted outside, roof included, with matched lumber, and covered, except the front, with felt roofing, and treated to a coat of roofing tar; if tarred every two or three years the roof will last indefinitely. The inside, except the front, is ceiled with plaster-board, for which studs and rafters are correctly spaced. The rafters are 2 x 8 material to support the roof, without props. The floor is double boarded with light roofing felt between. The lower may be of cheap rough lumber; but the upper floor is a medium grade of matched flooring, thus making the room warm, and precluding the possibility of a draft of cold air to endanger the health of the inmates.

In the front, at intervals of 8 ft., is a single-sash window of 10 x 14 glass, sliding upward between studs, and protected inside by wire netting stapled to studs. At equal distances, between each pair of windows, is a door hung in two pieces to swing outward. The lower half is 32 x 42 inches, and the upper half 32 x 36 inches. Hinged at the top, swinging inward and upward, and hooked to the ceiling, is a netting-covered frame of equal dimensions with the upper door, so that, when it is opened, the screen is swung into position, preventing the exit of the inmates and admitting of ventilation by day. These doors are opened every morning, and closed at night during winter, regardless of weather conditions. As a further means of ventilation by night and day is an opening six inches wide next to the roof in front, and extending the whole length of the building. It is covered with burlap, and, being so high, changes the air without creating a draft over the heads of fowls at night, or forming any accumulation of frost or moisure on the ceiling. The floor is at least two feet from the ground, and well ventilated underneath to guard against moisture in the scratching-litter, and three feet would not be too much, as this is an important factor in sanitation; for moisture here means filth, which breeds disease.

During cold winter weather a light frame covered with muslin is tacked on to the upper door-screens, thus combining light and warmth with suitable ventilation. Next to the north wall, and extending the whole length of the building, is the droppings-board, of a width to accommodate three lines of perches. These are in ten-foot sections, 16 in. above the droppings-board, and swing back against the ceiling. Under the droppings-board are the nests open to the hens from beneath and behind, and operating like the drawers of a work-bench. At intervals of 20 ft., intersecting the perches, is a short partition of equal width, extending from the droppings-board to the ceiling. This prevents the action of currents of air that would otherwise pass over the heads of the fowls at night with undesirable results. It will be noticed that the floor is free from encumbrance, and is virtually a mammoth scratching-room provided with perches and nests.

Impure air and filth breed disease; and a sick hen is neither a laying nor a paying hen; hence droppings should be removed daily, and dry fine sand sprinkled over the board. If kept dry the droppings are worth more per ton than the ordinary brands of commercial fertilizers.

STOCKING THE PLANT.

Next comes the stocking-up with early-hatched pullets, for these are the glory of the poultryman, and the winter egg-makers. This is the most complex problem of all, since it involves the rearing of hundreds of chicks by correct methods—methods that will produce strong healthy chicks; for a pullet with a weak constitution is an undesirable proposition. It is advisable to secure a sufficient number of yearling or two-year-old breeders of known health, vigor, and utility as egg-makers. This is imperative, for like produces like. Incubators were a success with us from the start, but it cost us dearly in dead chicks, wasted time, and money invested in artificial chick-killers under the cognomen of brooders. As *killers* they were all a howling success, and we carried the dead ones out by fives, by tens, by fifties, and by hundreds. "Experience is a good school, but the tuition is rather high" (Billings), for it cost us dearly to learn that the best brooder on earth is a gentle Wyandotte hen. She is well equipped with soft fluffy plumage, and will mother any thing from a jack-rabbit to a bull pup, and do it scientifically. We owned one that brooded four collie puppies until six weeks old. How is that for a brooder?

In practicing artificial methods with bees or poultry, our success will be conditional upon operating along lines that harmonize with the nature, habits, and instinct of the individual with whom we have to deal. While it is perfectly natural for full-grown fowls to congregate in large flocks, right the reverse is true in nature's method of rearing chicks. Instinct unerringly guides the acts of the prospective mother-hen in hiding her nest, and isolating her downy brood so long as they remain under her control. This is nature's method of rearing strong, vigorous, healthy chicks. While we may not improve upon her methods, we can imitate them so closely as to secure equally good results. Hence at the time of starting the incubators we secure a sufficient number of broody hens to mother the prospective hatch, and stock each nest with tested infertile eggs, treating each hen with louse powder twice, and anointing their heads with head-louse ointment before the chicks appear, otherwise the treatment will kill them also.

If chicks become chilled or overheated in an incubator after hatching they will dwindle and die in spite of the good offices of the mother-hen; therefore we must be on the spot when the hatch is due, and, when over, the door is propped open to allow sufficient change of air to prevent panting with open mouths, and not enough to cause the chicks to pile up for warmth. When conditions are right they will be spread evenly over the tray, sleeping quietly. I emphasize this point because a mistake or a little carelessness here will render all our labor and effort of no avail, since a chilled or scalded chick had better be dead so far as ultimate results are concerned. As fast as they get strong on their legs, place them under the hens at night, giving to each hen 35 chicks, making sure the hens are on a flat surface, otherwise the chicks will fall out and become chilled. The last batch removed will be the weaker of the hatch, and should be given to a gentle mother.

When three days old, begin feeding commercial chick-feed, soaking it in water for 20 minutes, and spreading it on a clean board. Feed sparingly four or five times a day for the first week on wet feed, giving no water nor grit. Begin feeding dry chick-feed and drinking-water the second week, but no grit until two weeks old, and then sparingly. The gizzard of a young chick is a very small organ; and if given access to fine sharp grit, chicks will fill their gizzards with it to the exclusion of life-sustaining food, and literally starve to death in the midst of plenty. The ignorant attendant, thinking to cure an imaginary distemper, dopes them with more grit and shells, with fatal results. When three weeks old the colony houses are isolated, and the chicks given a grass run, or fresh-grown oats, with chick-feed or cracked corn and wheat morning and night, having access also at all times to hoppers full of dry-mash food the same as given to laying hens. If these instructions are observed the result will be strong healthy chicks.

The chicks are hatched during April and May, and the colony houses should be of a size to accommodate the hen and her brood until they are full grown. Some of the pullets will begin laying in September, but should not be pushed for egg production until about November 1, when they are to be assembled within the winter laying-house, and not permitted to step outside until their year of egg production is completed and they are taken to market.

FEEDING FOR HIGH-PRESSURE EGG PRODUCTION

This is the most interesting stage of the program, and the enthusiastic attendant watches the rapid development of his pets and the reddening of their beautifully curved combs with bright anticipations of future success in the form of heaping baskets of beautiful eggs of snowy whiteness; and if he performs his part faithfully and intelligently his hopes will soon be realized. Next to the rearing of the chicks, this is undoubtedly the most critical part of the poultryman's experience; for the success of the whole venture depends upon the correct feeding of a scientifically balanced ration. A mistake here will result in a waste of expensive food material and a proportionate decrease in profits. Every feed contains a certain amount of necessary moisture varying from 8 to 90 per cent of its weight; hence the wisdom of supplying so-called dry-mash foods unmixed with water.

Since the hopper system of dry-mash feeding has been uniformly successful, and has economized labor to the extent of multiplying the number of hens that can be cared for by one man, and in one flock, it is not worth while to consider any other; and the subject of greatest importance is, how to compound the mash feed correctly. Space forbids a discussion of the composition of feed stuff and the nutrient value of different rations. Suffice it to say, it has been determined by carefully conducted experiments that the following ratio of mixing feed is second to none as an economical egg-making mash food: 100 lbs. corn meal, 100 lbs. ground oats, 100 lbs. gluten meal, 100 lbs. middlings, 300 lbs. bran, 100 lbs. beef scrap, 100 lbs. alfalfa meal. This compound should be kept constantly before the fowls in hoppers, while the morning and noon ration consists of a light feed of scratching material of mixed grains consisting of cracked corn, wheat, buckwheat, and millet. This is scattered in straw six inches deep, and the hens are literally compelled to scratch for every kernel of grain they get. At 4 o'clock P. M. they are given all the corn and wheat they will pick up in 20 min-

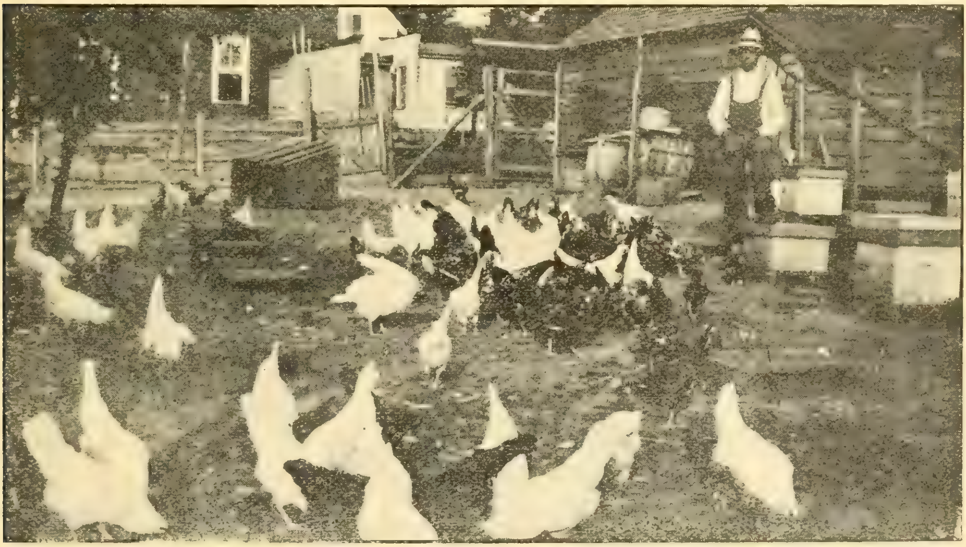
Apiary of J. H. Warner & Son, Middleburgh, N. Y.

utes, which causes more singing and scratching, and the hens will go to roost with a full crop, which is very desirable, because this is the proper time for the digestion of a grain ration, since it maintains a healthy action of the digestive organs during the night, keeping the blood warm and the fowl comfortable.

Economical feeding depends upon the amount of food digested rather than on the amount consumed, hence green vegetable food must be liberally supplied, preferably in the form of mangolds, cabbage, and fine-cut clover. Granulated charcoal, granulated bone, grit, and oyster-shells should also be kept constantly before the fowls in separate hoppers. It has been demonstrated that this system of feeding will maintain health and vital energy during a protracted period of high-pressure feeding. Fowls require more water in proportion to weight than other domestic animals; hence a liberal supply should be kept constantly before them, preferably in a large container fitted with a drip faucet regulated to the amount they will take without running over the trough, and should be tempered with hot water during extremely cold weather.

FEED-HOPPERS.

Manifold are the hoppers that do not hop, and legion is the name for those that hop so fast that an industrious hen will ingeniously hook the contents out upon the floor with her beak in search of choice bits that are always found in dry-mash feed; hence such feeds should be ground exceedingly fine. We overcame this waste of feed material by using a hopper that does not hop, but always remains wide open, and defies the most energetic hen to waste a morsel of its contents. Here it is: Make a



Warner's poultry and bee yard combined. The chickens have the run of the apiary, helping to keep the grass down.

One of J. H. Warner & Son's two poultry-houses accommodating 250 hens each.

light box with open top 30 inches square, 6 inches deep, mounted on legs 12 inches long; a loose-fitting frame, covered with inch-mesh netting, acts as a follower as long as the feed lasts, and the biddies soon become disgusted with hooking beak and toe-nails upon intervening wires in a vain attempt to explore its contents.

CHOOSING THE BREED.

We would not select a Percheron horse for a trotter, and for the same reason we should not select any of the general-utility breeds for exclusive egg production. While single individuals of these breeds may equal the best Leghorns as egg-producers, the fact remains that the Leghorns stand pre-eminent among all breeds as walking egg-machines; hence the name "Leghorn" is a synonym of efficiency and utility in egg-production. The white variety is conspicuous on account of her queenly form and graceful carriage, as well as her beautifully drooping crimson comb and the exceedingly large size of her snow-white eggs. Undoubtedly the Leghorn as a breed will stand high-pressure feeding for commercial egg production better than any other.

Birmingham, Ohio.

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BEES AND POULTRY IN THE YEARS GONE BY

BY L. G. CARY

Poultry Judge

This subject will bring out some good articles, no doubt, written by those capable of writing interesting articles; but as for myself, I have had experience that, if I had talent to relate in an interesting and proper manner, I might have an article worth reading. However, it is plain talk that we like to have, and facts that will do us some good.

I have been a poultry lover all my life, and can not remember the time I did not have my few thoroughbred birds. When a boy of eight years I owned some grand pit games and raised them for an uncle of mine who was a great fancier, and paid some fancy prices for them. He kept me in stock, and I certainly spent many a happy hour with my favorite birds. I almost lived with them, when I had time from running errands for my mother or helping my father around the farm. Boys began helping earlier those days than they do now, it seems to me.

At the age of forty I can look back to those days of my childhood and readily understand why it is that I can not help raising poultry, and, furthermore, why I am interested in the production of thoroughbred birds. It seems to me I am a bigger crank than ever about all kinds of poultry. I will say that I have found my poultry work very pleasant, and, of course, interesting and also profitable.

I also remember back in those barefoot days, when I was taking my first lessons in poultry culture my father, who was very fond of honey (I might as well include myself in this fondness for honey) got the notion that he would raise some bees. At that time we knew little of the Italians or any particular breed of bees. We just thought bees were bees, and that was all there was to it, and that any kind of box was a hive. I do not remember where he got his first start, but I think he bought them at a sale. Anyhow, we had some bees, and in the spring more bees, as they swarmed often.

How well I remember what a turmoil there was on the little farm when the bees swarmed! My father and I out in the cornfield were startled to hear the dinner-bell begin to ring about nine in the morning; but we had no more than started for the house when we were assured that no greater calamity had happened than the bees swarming, as we could hear the din and rattle that mother and the other children were making to get the bees to settle. We thought if we would beat on tin pans and make a furious noise of some kind it would cause the bees to settle.

The bee business did not pay big results. If we got enough honey for the table we thought we were doing well; for whenever we took honey we had to kill the bees with sulphur.

Poultry was not a very paying item of the farm then, as the birds were left to roost in the trees and in the wagonshed, on the fences—in fact, about wherever they took a notion to stop. Their feed consisted of whatever they could steal from the horses, hogs, or sheep. When very cold weather came, and a continued cold spell with snow for several weeks, my mother would issue orders that the chickens that were roosting out be caught and put in the hen-house; so when dusk came we began gathering them in. They were wild, and such a lot of squawking and squalling as we carried them to the hen-house and dumped them in at the door! They would keep right on squalling after we threw them in the house. It is not much wonder that we did not get eggs in the winter. When the warmer days of spring came, and the hens began to lay a few eggs, you may depend upon it we did not get any eggs to eat, for they had to go to the store to help buy our groceries; and from that time until cold weather again those abused and neglected hens would buy the most of the groceries for the table. In those days if the hens began to lay, then they would get better care; but when they shut off in laying, then the feed was stopped. Now we know better than that. We must give our poultry good care at all times; for when moulting time comes, and the egg supply slacks off, we must feed well to hurry through the moult so that, without loss of time, the hens will go to laying again.

What great improvements we have seen with bees as well as poultry! Then it would have seemed beyond reason to say that one swarm of bees would yield honey to the amount of 75 or 100 pounds during one season. It would likewise have seemed incredible to say that one hen would produce 200 eggs per year. All this has come to pass, and hens have been tested and known to lay more than 250 eggs per year. These hens are thoroughbred stock too. It does not pay to raise any other.

Bees have been improved, and the hives have been improved, until it is a science to raise and care for bees intelligently. The old box hive has given way to the new frame hive, and the few unprofitable swarms to the prosperous and paying apiary where pleasure, interest, and profit go hand in hand. Likewise the old log hen-house, with its mongrels, has given way to the well-arranged poultry-house with its number of thoroughbred birds, eggs in winter—profitable the year round. In the days of boyhood we got ten cents per dozen (often less) for eggs. Now we are selling fresh eggs at forty cents per dozen.

Bees and poultry go well together, and the successful poultry-breeder is very likely to be a successful beekeeper because he must be a person who looks into the details of his occupation and never tires of doing the little things that must be looked after to make success in both. A poultry-farm and bee-raising make a combination that, if looked after intelligently, and details and care given to every part, afford pleasure, health, and prosperity. A good location for poultry is a good location for bees; and one who loves the work of poultry-raising will find bees as interesting, if not more, and very profitable as well.

Trimble, Ohio.

POULTRY-RAISING AS A SIDE LINE WITH BEEKEEPING

BY ROSCOE F. WIXSON

It seems to be a noticeable fact that a number of prominent beekeepers in different parts of the country have adopted poultry as a valuable side issue to their business. On the other hand, there are a few who rely almost entirely upon the poultry as a means of livelihood, making the bee business wholly secondary, or not attempting to bother with it at all. In this section of the State the popular impression is that considerable ought to be made from chickens and comparatively nothing from bees.

I agree with the late E. W. Alexander, who said, "If you want a larger income, just add on one or two hundred more colonies." But in my case, with only a few colonies of bees and not many years' experience, I find it impracticable to increase too fast; and, accordingly, the fall and winter months leave me almost nothing to do with the bees. For several years I have kept a number of chickens, not only to take up the time but also as a means of profit.

The accompanying view of my home yard of bees shows also the two poultry-houses which stand a little to the left of the picture. The hives and the two houses are so closely placed together that it is a very easy matter to attend to the wants of each without going out of my way.

The White Leghorn seems to me the best all-around hen for steady egg production. In order to keep the stock up to perfection, I introduce pure stock every year. Some time ago I found that a hen kept the third

Apiary and poultry-house of Roscoe F. Wixson, conveniently located close together.

winter does not lay as well as a pullet or a year-old hen. Without the use of leg-bands I often had trouble in telling the older fowls. The hens are now so banded that no fowl is kept for the third winter. The bands are arranged in two sets of numbers, the bands on the pullets being all No. 1, while the year-olds are numbered 2. When the yearlings arrive at the two-year mark they are sold, and the bands changed to the pullets of that year's raising. The selling generally comes along in October, so they are somewhat over two years old when sold.

For feeding I follow the balanced ration given out by the experts at Cornell University. They consider 60 pounds of wheat, 60 pounds of corn, 30 pounds of oats, and 30 pounds of buckwheat mixed together an ideal feed for winter use. During the late fall and winter, ground bone and meat can be obtained at the markets. This food will induce hens to lay when all others fail. At this writing, November 28, it is impossible to procure the ground bone, so I am feeding meat scraps with good results.

In looking over the books for 1913 up to the present time, I find that the total number of eggs sold from 23 hens is 2495. In this amount no attention has been paid to the number used in the household during the year for cooking. The hens still have yet a month left to their credit before the year is up. At the present, the average yield per day amounts to about 9. Therefore for December they would have at least 270 more, which would bring a total of 2765, or an average of 120 eggs per hen for the year. If the total number used for cooking were known, quite a good showing could be made.

By also referring to the books, results show that the hens up to the present time have paid me a profit of 95 cents each. This does not take into consideration the value of 17 pullets, although the cost of raising them has been charged to the hens.

Ever since the spring of 1905 I have been interested in bees. Last season gave me some experience, and also a fair crop of honey from thirty colonies of bees, spring count. In the Aug. 1st issue, page 525, I told some of my experiences in regard to beekeeping, so I will give only a brief report of last season. The total number of sections of honey produced amounted to 1397. In addition to this I obtained about 500 pounds of extracted honey. On account of a number of colonies being reinfected with foul brood in the spring, there was an increase of only 11 colonies. When the season commenced, it never occurred to me that an extractor is a necessity in every bee-yard, especially when one increases by artificial methods. By July 1 I realized the great importance of a machine, and ordered one, but it did not arrive until the latter part of July, so I was able to procure the above amount only. I have no doubt that 1000 pounds of extracted honey could have been produced if the extractor had been in the yard the entire season.

There is considerable profit and pleasure

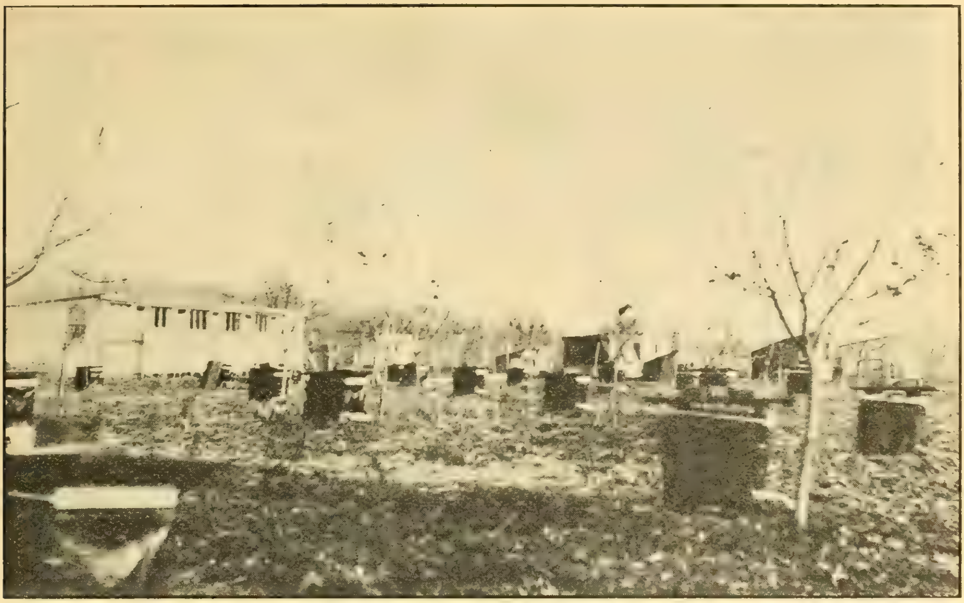

FIG. 1.—General view of W. R. Bartlett's apiary and poultry plant, located in a young orchard. A similar view is shown on the cover for this issue.

both in poultry-raising and in beekeeping. Both of these pursuits require patience and perseverance; so success in many cases depends entirely on the man. It is my plan to keep on raising a few chickens as long as they do not interfere and bother me in apiary work.

Dundee, N. Y.

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1500 CHICKENS AND 50 COLONIES OF BEES

Why the Two Lines Go Well Together ; Specializing in the Production of Sterile Eggs

BY W. R. BARTLETT

The combination of bees, poultry, and, I might add, an orchard, is an ideal one. We have two acres of land in a young orchard, and here we have the bees and poultry. A good growth of elderberry bushes and small trees on the south, east, and west lines of the lot, and the poultry-buildings on the north, furnish a good windbreak. We have from 1000 to 1500 chickens and 50 colonies of bees.

As we hatch all our chickens with incubators we are enabled to produce eggs and broilers (cockerels) when the prices are the highest. We feed the newly hatched chicks nothing for the first 48 hours, after which one of the commercial chick-foods is given every two hours for the first four or five days, gradually reducing the feeding to morning, noon, and night.

The brooder house, one room 28 x 16, is divided into pens by poultry wire, and a lamp-heated movable hover is placed in each pen of 100 chicks. This admits plenty of pure air, gives scratching-space, and insures perfectly sanitary conditions.

Grit, oyster-shells, and charcoal are continually before all fowls. The morning and evening meals for the fowls of all ages consist of mixed grains thrown into the litter. A dry mash, fed in troughs, is given at noon. Green food is fed to all at nine in the forenoon.

At the age of six weeks the chicks are placed in the colony houses and given the free range of the orchard. About Oct. 1 the pullets are moved to the large winter houses. The males are put with the two-year-old layers during the breeding season only—from January 1 to June 1. The pullets are kept for laying entirely, as we make a specialty of sterile eggs for table use. We have a special trade in Cleveland, where there is a growing demand for *sterile* eggs.

We have not been in the bee business as long as we have in the poultry business; but we find business methods apply to the bees as well as to the poultry. A complete system of accounting is maintained. The hives are placed in rows, each one in the shade of a tree. Each hive bears a tin tag on which is painted the row letter, and hive number, enabling one to locate any hive immediately.

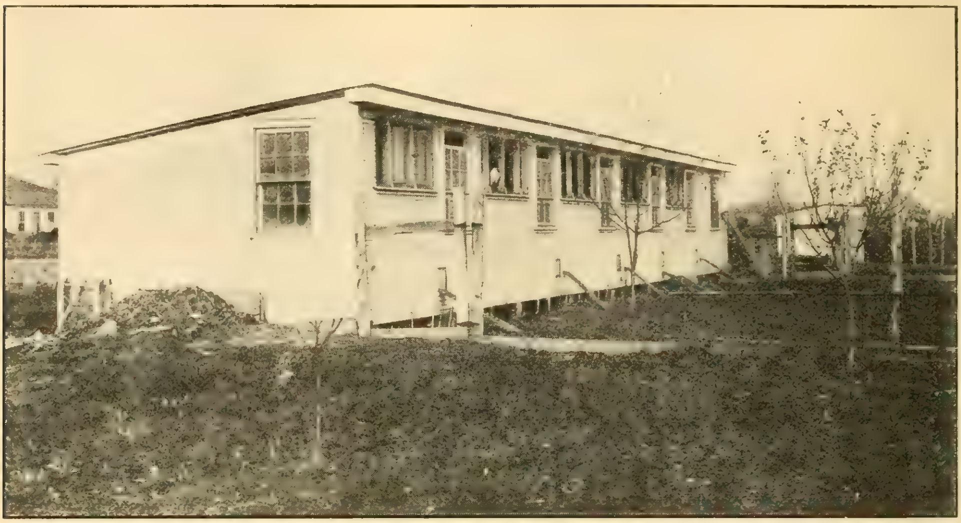

FIG. 2.—One of Mr. Bartlett's poultry-houses at close range.

In the management of bees and poultry, every man, as he gathers experience, adopts methods peculiar to his own needs and conditions. We have found that it is the best policy to have all hives and parts uniform and interchangeable; and we therefore purchase all our supplies from one reliable manufacturer, which saves much time and labor.

We operate principally for comb honey. In order to check swarming somewhat we believe in plenty of hive room and ventilation. In the spring all queens are clipped.

We find the smoking plan of introducing queens one of the best.

There are several devices which have proven to be very convenient, among which is a frame the size of a hive covered with wire cloth, which, when placed over the top of the frames, prevents the bees from flying out and robber bees from getting in when the cover of the hive is off. At the same time, one is able to see what is going on in the hive. When a hive is being robbed we find a wire-cloth box, large enough to telescope over the entire hive, very effectual.

Early in the fall all colonies that are short of stores are fed a sufficient amount of syrup, so that none have less than 25 lbs. for winter. Weak colonies are united by placing one hive on top of the other, with a screen between them for three or four days.

Our bees winter on their summer stands. and are protected with chaff cushions in a super on top (grain-bags, one on each side), together with an outer covering of roofing paper securely tied with a heavy cord.

There are many reasons why the bee and poultry businesses work together advantageously. Each business has its own busy season. The incubating and brooding of chickens is practically over before the busy season with the bees begins. Another advantage of the combination is that the same land can be utilized for both. Besides this, poultry fertilizes the land, bees fertilize the fruit, and the fruit-blossoms furnish the bees with nectar.

Our idea is to have a good laying strain of White Leghorns, a good laying strain of Italians, and to " keep on the job."

North Ridgeville, Ohio.

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A BEE AND POULTRY PARTNERSHIP

BY RUTH C. GIFFORD

My mother and I are in the poultry and bee business in partnership. The days I am busy with the bees she takes entire charge of the poultry. We have struck some " bumps " with the bees, but more with the poultry. So the things that follow in this article are from plain hard experience.

For several years our troubles started a few days after the first chicks were hatched, and, in spite of all our care, we seldom raised half of them. Some died with the white diarrhea, and others just dried up until they looked like bumble-bees, and fell over dead. Then we decided to change the feed and the method of management. Since that time we have seldom had a sick chick. With this method we give the chicks lukewarm water and grit when they are 40 hours old. Two hours later we give them a little bit of fine oatmeal. This is given them every three or four hours for three days. After that we use a good chick-feed of mixed grains. We usually buy this by the hundred pounds direct from some poultry-supply house, because we find that by so doing we can save about a cent a pound. When the chicks are a week or ten days old we start to give, once a day, a level teaspoonful of commercial beef scrap and fine bone for every twenty chicks. We feed often, but give a *very small quantity* at a time. All the feed is scattered in straw or hay-heads, and the chicks have to scratch for it. When they are about a month old we add wheat and cracked corn to their ration, and give them all they want to eat. We never give chicks any kind of ground feed.

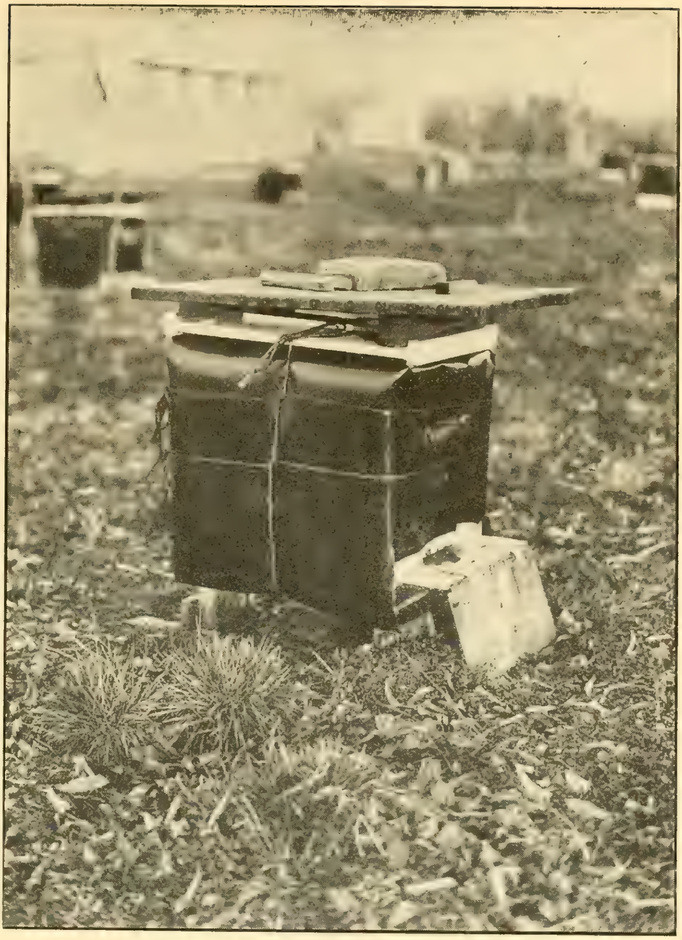


FIG. 3.—Mr. Bartlett's method of preparing hives for winter. A super is placed over the brood-chamber containing a chaff cushion held away from the top-bars by means of a Hill device. The super-cover is then put on, and the whole hive wrapped in a heavy grade of black enameled felt. The regular hive-cover is put on top, and the whole tied together. Lastly the paper-cover shade-board is put on and weighted down.

Next the gapes started among the chicks. We finally settled on the old-fashioned horse-hair method to remedy that. We could not always make it work, though, until some kind neighbor told us to catch a small string behind the two little hooks on the back part of the chicks' tongues, and to hold on to the ends of the string with the thumb and first finger of the left hand. This prevented the chicks from jerking in their tongues and sending the hair down their throats instead of their windpipes. If the little loop in the hair is dipped in turpentine the worms let go much easier. We never send the horse-hair down their windpipes more than three times. Then we let them sleep in a basket for several hours, and after that try again if they are still gaping. However, we usually find that they have all stopped.

Our chicks had lice, too; but we never even touched them to look for lice until they were ten days old. Then we poured a mixture of four parts of coal-oil and one part of crude carbolic acid over the bottoms of the coops, and that night picked the head-lice off their heads. This is not pleasant work; but chicks can't live with lice boring into their brains. We waited until they were ten days old, because then the handling does not weaken them, and we did it at night because they were sleepy and did not make a fuss.

When the chickens weigh about three pounds we select the pullets we want to keep for laying. As our chickens are Plymouth Rocks we have to try to guard against the type that gets overfat. We select the active, bright-eyed pullets that have medium-large combs, broad breasts, and are wide between the pelvic bones. Even after this care we seldom risk keeping them over two years. In order to tell which are the two-year-old hens, we place hog-rings on the left legs of the pullets one year, and on the right legs of the pullets the next year. Then we sell the hens in June and July after their second winter. We like the hog-rings because they are easy to use and so cheap that we don't have to bother removing them when we sell the hens.

North East, Md.

BEEKEEPING, POULTRY-RAISING, AND GARDENING

BY C. H. GEBHARDT

On Nov. 1, 1912, I housed 18 yearlings, 25 pullets, and three cockerels of the White Wyandotte strain. After having tried many other breeds I think that the Wyandottes are the best all-around breed for every purpose. I had White Leghorns once, and could get a few dozen eggs more per year; but for broilers they are of no use; and in the fall, when one wants to sell the old hens, their carcasses will bring hardly any thing, while White Wyandottes make the finest broilers, and the old hens weigh from 7 to 8 lbs. They are good layers and good mothers, while Leghorns are non-sitters; and if one wants to raise Leghorns he can not find enough sitters, so he must keep a few of some other breed for sitters or use incubators, which will not pay for a man with small means.

FIG. 1.—C. H. Gebhardt, Lake Geneva, Wis., and his White Wyandottes.

I feed my laying hens a mash composed of equal parts of bran, corn meal, ground oats, chopped alfalfa, and 1 lb. of beef scraps, keeping plenty of oyster-shells, grits, charcoal, and fresh water before them all the time. At noon I give them a few handfuls of wheat in their litter to keep them busy scratching. In the evening I feed them equal part (my own mixture) of wheat, cracked corn, and oats.

FIG. 2.—Mr. Gebhardt in his apiary, Lake Geneva, Wis.

I paint the perches every week with kerosene and carbolic acid, and powder the nests every week with Persian insect-powder. Once a month I change the nest material, also the litters out of the scratching-pens. For the laying hens I have a room 10 x 12 feet next to my horse-stable, so it is nice and warm. The scratching-pens, as can be seen at the extreme left of Fig. 1, are made out of old hot-bed sash 10 x 12 feet. The yard is 30 x 50 long, and in summer the chickens have free range.

My wife takes care of all the young chickens, hatching them under hens. All this we do in our spare time, as I must attend to my garden from 7 A. M. to 5 P. M. The bees I attend to mostly alone in summer.

Sometimes I took comb honey out at 3 A. M. as the bees were quiet, and it was not so hot as in the bright sun, and at 7 A. M. I was through. The extracting of honey and grading of sections we did evenings. You see if a man is ambitious he can do a good deal.

Lake Geneva, Wis.

BEES AND POULTRY FOR ELDERLY PEOPLE

Chicks Eating Drones

BY H. H. SNOWBERGER

My wife and I, now both past 75 years of age, jointly own three acres of ground, and have for years kept bees and chickens in the same lot. We have been quite successful. While I do the work with the bees, and feed the old chickens, the care of the young chicks falls mostly to her during swarming time, and until the honey-flow is over, when I assist her to some extent until later in the fall when cold weather sets in. Then I assume all the work, both with bees and chickens. While I do quite well with the bees, there is occasionally a season, as all beekeepers know, when the honey crop is short or an entire failure; then an income of from $150 to $175 per year from our chickens comes in good play to bridge over the shortage from honey.

"But," many ask, "will the two get along peaceably together? Will not the bees sting the chickens?" Well, that depends. So long as we kept any black chickens we had many a chick stung to death; but when we changed to Barred Plymouth Rocks there were not so many. Five or six years ago we changed to Buff Orpingtons, and have had practically no trouble from stinging since, although the hens with their broods (we use no incubator nor brooder) are among and close to the hives more or less all day. I don't think we have had a chick badly stung since we have kept Buff Orpingtons. A very few times I have seen one or two bees attack an old hen when she came too close or became too fussy close to a hive. But she would soon skeedaddle, and the brood would follow.

One advantage in keeping chickens in the same yard with bees is getting rid of drones. I don't aim to rear many drones except in a few choice colonies; but, as all beekeepers know, almost every colony will find or make a place to rear a few drones; and in manipulating my bees I always have a sharp knife in my tool-kit; and if I find any undesirable drone brood I shave their heads off, when, of course, the bees will drag them out and drop them in front of the hive, where the chickens soon find them and learn to eat drones, and soon go to catching live ones, picking them from among the workers on the alighting-board, and even catching them on the wing in front of the hive. I have my hives close to the ground; but if I have any choice drones that I wish to save I must set the hive 20 or 24 inches above the ground. This work is invariably done by the young chickens after the mother hen has left the brood, or when they weigh 1¼ to 2 lbs. I don't remember ever seeing an *old* hen catching drones; but the chicks do, and they go about it with perfect impunity, seldom being attacked by bees. Not all the chicks nor even a majority of them catch drones; but every season a few learn the trick, and they practice it industriously and succesfully. I have often watched them to see if they caught workers, but could never see them catch a worker.

The Buff Orpingtons do finely for us along with bees. They are of good size, easily confined, a fair layer, good mothers, not easily excited, a splendid table fowl, and the nicest fowl to dress we ever raised. They sell very readily on that account, but the hens are inclined to be a little broody.

We eat all the eggs and chicken we want, and sell $150 to $175 worth of eggs and chickens per year. We also keep a cow, and from these three sources we make a comfortable living on our three acres of ground, and have a little laid by for a rainy day which is fast approaching.

Before I engaged in bee and poultry keeping I worked by day's work, and little more than made a living. For some years I have not been able to do hard work; but by keeping bees and chickens I need not work nearly as hard as I formerly did, and can make a much better living than when doing day labor; and there are many elderly people in limited circumstances barely making a living at hard labor who could materially increase their income, and per-

Anton Larsen and his six honey-eaters.

haps prolong their lives, if they would quit hard labor, for which they are no more fitted, and engage in these same occupations, especially if they have a small permanent home of their own.

Huntington, Ind.

A BACK-YARD POULTRY-PLANT

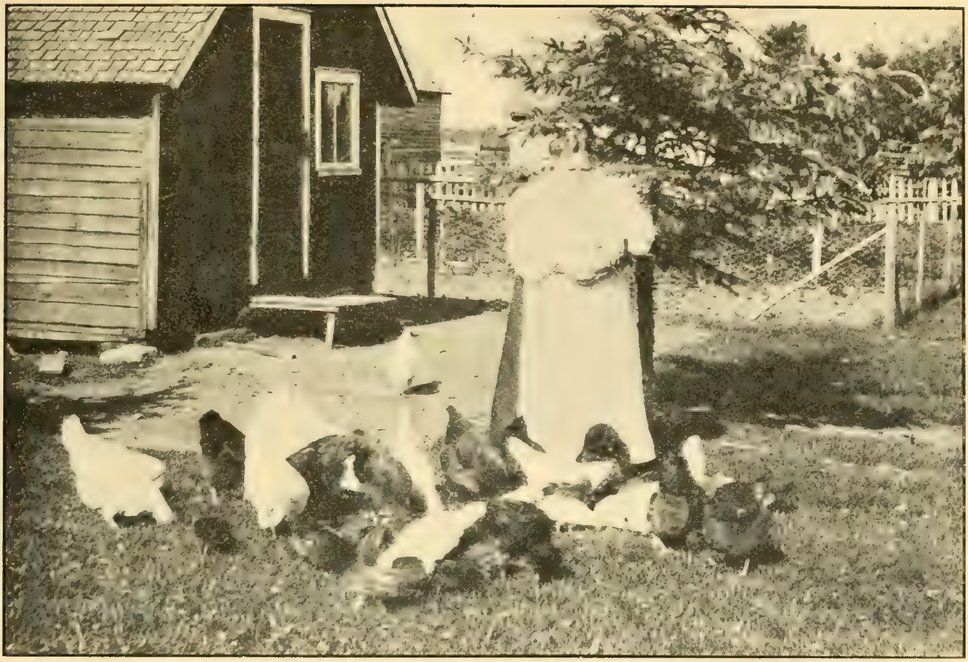
BY GEORGE T. WHITTEN

My poultry-plant occupies a plot of ground about 20 by 50 feet, and consists of four houses six feet square, two-story, with gable roof, 6½ feet to gable, and 4½ feet to the eaves. The lower floor is for a scratching-space, and the upper one for roosts and nests. A shutter is provided on each side, two feet high; these open out and rest on prop, and are kept open in summer for ventilation and shade. They are closed in winter, making the house absolutely tight except the door in the south end, 2 feet wide by 5 feet 8 inches high, which has wire on the inside and muslin on the outside. The cloth is put on late in the fall, and taken off early in spring.

All inside fixtures are home-made except the drinking-fountains. These are eight-quart galvanized-iron pails, costing ten cents each. They are the most convenient fountain I can get, and give the best satisfaction. They are placed on a slatted platform raised 14 inches from the floor. This keeps the water clean, and does not take any of the floor space.

I feed scratch food in the litter night and morning, except two or three feeds a week when oats, corn, or boiled vegetables are given for a change. Dry mash is kept before them in hoppers at all times, also grit, shell, and charcoal. They have green feed every day in the form of lawn-clippings, turnips, Swiss chard, or beets. I sometimes feed sprouted oats.

My chickens are hatched by hens and incubators both, and brooded in fireless brooders. These are 3 feet square, with floor, and a covered rim 3 x 6 feet on the front. Cheese-boxes are used for hovers with a hole cut on each side in front 10 inches apart, so the chicks can pass in and out at either side. These are placed in shoe-boxes that are the same width as the cheese-box, so that the entrances to hovers come in the corners of the box, or against the sides. In this way the chicks crowd one another into the hover rather than out. A cover is provided for the hover by means of a wire hoop that fits the inside of the cheese-box, and covered with burlap. Wires for holding it are bent to hang over the edge of the box. By these the mats can be adjusted to the size of the chicks by raising or lowering them. Chick



Mrs. Larsen and her flock of grain-eaters.

feed is used, and growing mash kept before them at all times. Green food is given every day.

For the best results pullets should be hatched the last of March or the first of April, and kept growing as fast as possible so they will begin laying during October.

Results for one year: 39 hens averaged 171 eggs each for the year. Paid out for feed, etc., $115.29; received $277.65—profit. $162.36. This includes eggs and chickens that were produced and sold.

I think there is no combination that could be worked together on a farm to better advantage than bees, poultry, and fruit.

Hartford, Ct.

WEEDING OUT THE HENS THAT DO NOT LAY

The Use of Trap Nests

BY C. A. KINSEY

Three years ago I bought two cocks and twenty hens, reputed to be good layers, because, I suppose, they were White Leghorns. For two years those hens and increase did not more than pay for their feed. I fed them the best I knew how, which was according to the good old days on the farm when I was small, and went out in the morning and threw the hens a pail of grain from the granary, and gathered the eggs at night. Once a year or so father traded a rooster with one of the neighbors, and the neighbors all did likewise. I don't believe now that any of those flocks ever paid their keep, barring the fact that there was a good deal of grain scattered around that they could get which otherwise might have been wasted.

A year ago I got a second-hand incubator, and through the catalog with it I secured a lot of free poultry literature from the manufacturers.

Feb. 1, 1913, I selected 25 Leghorn pullets and 8 Barred Rock hens and pullets, and I bought two Leghorn cockerels and a Barred Rock cockerel to mate them with. They commenced to lay during the fore part of February, and laid fairly well during March and April, but not enough to pay for more than their feed. I knew that some were laying better than others; and in order to get their eggs for hatching I made some trap nests, put numbered bands on the pullets, numbered each pullet's eggs, and saved the best layer's eggs for hatching. I put in the trap nests May 12, and by July 12 I had found out several things about my hens. Out of the 25 Leghorns there were six that had laid 35 to 40 eggs each. Others laid from 5 to 20 each, and three *none at all.* They were good lookers; and but for the trap nests no doubt I would still have those three hens for breeders this year, for those three hens, mind you, would go into the nests just as often as the better layers, settle themselves comfortably for an hour or so, and then cackle as loud as any, but never lay an egg! When I dressed them for the table later, I found them to be practically barren.

During the latter part of the season some of the medium layers caught up with the best ones; the others I sold, or killed for our own use.

The total eggs laid by the flock from March 1 to Dec. 1 would pay for the feed consumed by the old flock and the new.

We have had eggs for our own use and hatching, and sold the rest; had all the fryers needed for a family of four, and sold $16.00 worth besides; and have for breeders 15 Leghorn hens and 6 Barred Rocks; also 30 Leghorn pullets that are beginning to lay, and 32 Barred Rocks. I got some new cockerels of both breeds from flocks of good reputation as layers. I am also following the best methods I can learn as to feeding; viz., feeding in litter for winter, balanced rations, mash, green bone, sprouted oats, chopped vegetables, clean quarters, etc., and if they don't lay it will be because it isn't in them to do so. However, I expect that, with proper care, they will lay fairly well, and, with the aid of the trap nests, I shall be able to select the best layers, and thereby get cockerels that will produce layers, for it is claimed that the cock is two-thirds of the flock in that respect.

Another thing, I don't have to hunt in all the out-of-the-way places for eggs. The hens prefer the trap nest, where they are unmolested. The big Barred Rocks will even push their way in some time early in the morning before I have set them for the day.

Of course, trap nesting requires attention. For the good of the hens they should be looked after every two hours, at least, though mine have to go from one o'clock to nearly six in the afternoon.

Belgrade, Mont.

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ASHES TO EXTERMINATE RED MITES AND LICE

BY W. H. LEWIS

It is over 30 years since I bought my first dozen of eggs from pure-bred fowls, and about the same time made an incubator. During this time I have had about all of what A. I. Root calls "happy surprises." "Convergent" poultry-yards and round barns were voted a "dismal failure" in this region about 20 years ago. A few were built of each; but in every case they were torn down and the colony plan, or long house with yards on each side for fowls, and the square barn for the farm, were substituted.

Hot tallow for chicken perches I tried about 15 years ago, and it is a waste of time and tallow. Dirt sticks to the tallow in a very short time, and the mites make "bridges" over it.

During these thirty years, up to the last four years, my wife has been considered the "boss" of the poultry part of our ranch, and she knows something about chickens too. During the time mentioned of our "joint" management we have fought mites and lice by the millions, and I must confess we came out second best, as we never could exterminate them.

Four years ago I determined to take up the chickens as a sole business, having arrived at the age where the old man is crowded out by the younger, and also concluded that, if I could not make a success, it did not much matter, as my wife and I have always tried to sit tight on the "nimble shilling."

I commenced by increasing the flock, and cleaned out all the chicken-houses; we had used a good deal of slack lime as a deodorizer prior to this time; but not having any on hand the idea occurred to me to use ashes, which I did, and soon came to the conclusion that ashes are better than lime. Before summer was over I also noticed that my young chickens in fireless brooders were alive with mites while the stock in the old houses was perfectly free—first credit to the ashes. About this time I sold the old farm, built a new home and a lot of chicken-houses on the colony plan; moved my young stock from the old farm, sold the rest, and have done nothing else since (three years) but tend to my chickens and bees. I have used nothing in my chicken-houses (which are double-floored) but coal ashes as a deodorizer, about two gallons to each house holding about 50 hens, once a week at cleaning time, throwing the ashes on the droppings platforms, and over the top and ends of the roosts. Up to the present I have not seen a mite, no lice, but few fleas. These houses, now three years old, have not been whitewashed, nor has a particle of disinfectant of any kind been sprayed on the inside; and now I will give a bonus big enough to start all the millionaries of the United States hunting to find a single mite, louse, or flea on the inside. Nothing but a plentiful dusting of coal ashes did it, and the ashes go out with the droppings every week to fertilize the garden, and a new lot put in. Two years ago I gave my daughter, living on the lot next to me, a dozen hens from my pens, and in about a year the mites and lice came near finishing them—no ashes used. Since then ashes have been used according to my directions, and now chickens are clean.

To conclude, thoroughness is necessary in every thing to be successful. If my method is followed, and fine coal or wood ashes used, it will positively rid and keep clean any chicken-house, at least in this locality.

East Barnaby, B. C.

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THE BEST POULTRY-HOUSE FOR SUMMER AND WINTER

A Home-made Poultry-house for a City Lot

BY E. H. UPSON

After more than forty years of experimenting with different styles of houses I have, by close observation, come to the conclusion that a cheap well-ventilated dry house is more satisfactory than the more elaborate affair. Having retired from the farm I am now located in the suburbs of a city of 13,000, and last spring I built a poultry-house which is so satisfactory that I should like to describe it briefly for the benefit of others of the GLEANINGS family who, like myself, are small beekeepers and poultry-raisers in a sort of play-and-profit combination.

The house is 12 x 20 ft., inside measure, and 7 feet high at the eaves. It has a pitch roof, and is set on a solid concrete wall. In order to make it rat and mouse proof I cemented the floor with a concrete of one part Portland cement and six parts gravel without sifting.

For convenience in letting the fowls to and from the yard I have an opening about 9 by 18 inches, fitted with a slide which I carefully close at night, and feel sure that nothing can molest the chickens, as all other openings are carefully protected by galvanized wire cloth. In one side, and near the end, I have a door 2 ft. 8 inches by 6 ft. 6, which, of course, I keep closed all the time except when in actual use. The building is enclosed with beaded drop siding, which makes it sufficiently warm for ordinary purposes.

For ventilation I left two openings on the south side, each 20 by 60 inches; one opening on the north side, 20 by 60 inches, and one in the east end 20 by 40 inches; also an opening in the door 20 x 20 inches. All these openings are closed with heavy galvanized cloth of mesh 5 to the inch. For summer I open all these windows and leave them open; but for winter I tack heavy brown muslin over the openings except on the south. I have two barn windows, and on the east one window. This gives sufficient light, and the muslin gives sufficient ventilation and at the same time prevents the winds from blowing into the building. I have two rows of perches extending the whole length of the building on the north side. Two rows across the west end, and two rows on the south run up nearly to the door, which is located near the east end. These perches will accommodate 150 ordinary-sized chickens, and are high enough to give plenty of room for nests underneath. The perches are all placed above droppings-boards; and for ease in cleaning, the droppings-boards are all hinged on one side and hooked up on the other, so that it is the simplest matter in the world to clean the boards. For convenience in handling the fowls I placed the perches in rows around the walls, and can reach any bird in the house from the floor without disturbing any of the others.

The material for this building cost about $90 in our local market here. This includes paint for two good coats.

Inasmuch as I did all the work myself, digging the trench, making the wall, doing all the carpentering, painting, etc., I am unable to state just what the entire cost would be; but the labor and painting would probably be not far from $35 at present prices for labor of this kind. Some readers may wonder why I use a cement floor instead of a board floor. I will tell you. I consider a board floor the *worst* factor in producing disease among fowls that I know of.

Ubee, Ind.

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A WOMAN'S EXPERIENCE WITH BEES AND CHICKENS

BY MRS. S. H. STOCKMAN

I have been a beekeeper for forty years, and a poultry-raiser for more years than that. As I said in the March 1st issue of GLEANINGS, my husband and I were in partnership with the bees after the first few months (not a silent partnership) until I took sole charge of the 20 colonies left, about 15 years ago, I think; but the poultry from the first has been my sole charge.

My husband's mother started me in the poultry line in 1870—43 years ago—with a Brahma hen and her flock of crossbred chickens. It was late fall, the chicks were about half feathered, and I smile now when I think what an unprepossessing lot they were; for if there is a more ungainly thing in existence than a half-feathered Light Brahma chick I have yet to see it. I have never been out of hens since. I commenced beekeeping in 1871, and have enjoyed both as well as helped to keep the family pocketbook from getting entirely empty at times.

I have kept many pure breeds and some crosses; but after all these years and the experiences which they have brought me I prefer the White Wyandottes for a general all-round-purpose money-making fowl. If well bred I find them healthy, good feeders, good layers of handsome eggs, and always ready for market from broiler size to adult fowl. I have of late years tried the Rhode Island Reds and Barred Rocks beside them, and found the White Wyandottes ahead in many respects. I have hatched for thirty years, mainly with incubators, and raised in brooders. I used at first the Monarch as made by James Rarkin; later the Cypress incubators and brooders, which we have found perfectly satisfactory if given proper care. We hatched chicks then by the hundreds for several years, and had very little loss by disease, my husband using the incubators and I the brooders, and caring for the laying hens. For the last 15 years I have kept from 50 to 100 layers, and raised from 100 to 200 chicks, seldom with a loss of more than half a dozen for the trying time the first two weeks.

I know well from experience that bees and poultry go well together in the way I manage it. While my husband is running the incubators in March and April (as we must hatch in those months in this State to get well-matured pullets for winter laying), I am looking over the brooders, cleaning them out, etc., and any thing needful, doing also the same with the bees. We ran a bee-supply business at our village; had for 15 years before coming to the farm, and I did about all the nailing and painting, putting together the frames and other inside work of the hives, so I well know how to do it, and enjoy doing it. Still, when the chicks hatch I take the sole charge of them and the brooders. After the bees are all looked over in April there is not much to do for them, so I give the chicks my sole attention for two weeks, then get them on to dry chick feed; and after that, with full feed and water-dishes, they nearly care for themselves. When the busy time comes with the bees in July, swarming time, as I have my queens all clipped, and practice brushed swarming, I soon have them so but little needs to be done for them except to give them room if needed; and as I have their fixtures all ready in early spring I have nothing to do but set on the filled supers.

About Aug. 1 I take off all clover honey, prepare the hives for the fall flow from goldenrod, fireweed, and aster; cut out and sell all the cockerels that have reached the broiler size, and all the undersized pullets; sell alive all my two-year-old hens, which compose about half my flock of about 100, leaving room for my 50 or more pullets which I get into the house for winter laying. I sell all my stock alive to a neighbor who supplies a large summer hotel. My bees usually get enough for winter from the fall flow, and seldom swarm after July. So I generally have little feeding, if any, to do; so by October I am pushing my pullets with good feed, and get them to laying by Thanksgiving or before.

Auburn, Maine.

OLD HIVES RETAIN THEIR VALUE

Painting Necessary

BY L. W. CROVATT

Apropos of the discussion, p. 750, Nov. 1, regarding the value of old hives to the producer of honey, I wish to say that the article was correct in all essential details, as has been demonstrated in a practical manner in my own yard. Dr. John S. Howkins, who was, perhaps, one of the largest beekeepers of this section of Georgia, had at one time 400 colonies located in West Savannah. Illness caused the physician to turn the active management of his yard over to other parties, and, as usual, neglect caused a quick deterioration both as regards the attractive appearance of the yard and the production of honey, the bees having been allowed to dwindle rapidly.

After one year Dr. Howkins decided that to attempt caring for his bees was out of the question; and at the eleventh hour, in a figurative sense, I was called upon to take over the bees and fixtures. Of the latter there were, perhaps, some hundreds of frames and a hundred hives. These had been in use for three or four years, some longer; but after getting the bees and empty hives to my home yard I immediately stored them out of the weather and made such small repairs as necessary, this being largely in the form of new rabbets, etc. The hive-bodies, after exposure to the elements, have proven, after a thorough examination, to be absolutely sound, only about ten or twelve being bad. These were discarded, and the sound ones again placed in use. The old hives are doing full service, having been in use in my yard for over nine months, and they compare favorably with the new ones —that is, stock made up for increase, etc., within the past few months.

I regard the old hives as equal to the new so far as point of service is concerned, and the outlook now is that a new coat of fresh paint will be all that is necessary to carry them through several years of work in the apiary. In view of the advance on lumber the advance on hives was a foregone conclusion some time ago, and the saving in this line represents a rather "pretty penny" in the operating expenses of this and the coming year.

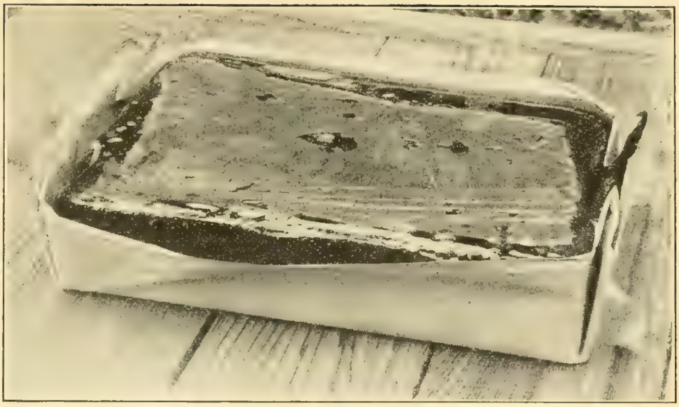

FIG. 1.—The finished cake or block of candy. It measures approximately 1½ in. thick, 6½ in. wide, and 9½ in. long. Weight about 5 lbs.

Hives can be saved and used constantly for years by the judicious use of paint; but it is a wise move on the part of the Southern beekeeper to have the bottom-boards well above the ground in order to avoid the absorption of moisture from the bottom-board into the lower edges of the body sides and ends.

And now for the results of painting. I am well aware of the fact that there are strenuous advocates of the unpainted hive; but if these had gotten a glimpse at the results of the weather on the few bad hives they would have probably been convinced that paint *is* valuable in the preservation of the wood; for in every case where the old bodies had crumbled from rot, the outer portion, in the form of a shell, was the only part remaining intact—rotten to a certain degree, but by far better than on the inner portions. Had it not been for the paint the whole structure would have crumbled at the first rough touch.

Savannah, Ga., Nov. 25.

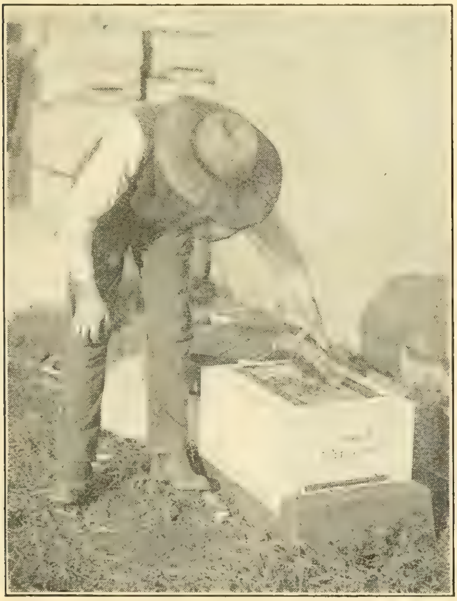

FIG. 2.—Giving the candy to the bees.

HARD CANDY FOR WINTER STORES

Some Experiments in Wintering Bees on Candy Alone

BY H. H. ROOT

As promised in our last issue, we are presenting herewith a number of engravings showing the different steps in the process of supplying cakes of hard transparent candy made of granulated sugar and water.

For the benefit of our readers who do not have access to back numbers we are repeating herewith the directions that have been given before in these columns:

HOW TO MAKE THE CANDY.

Into a dish of hot water on the stove slowly pour an equal amount of sugar, stirring constantly. Make sure that the sugar is all dissolved before boiling commences. If this precaution is not observed, some of the undissolved sugar is likely to burn, injuring the flavor of the candy and almost surely causing trouble with the bees later. If you have a candy thermometer, watch the temperature, and do not let it go above 275 to 280 degrees. Test frequently by dropping a very little of the syrup into cold water (about 50 to 55 degrees F.). When the boiling has continued long enough the drop of candy, when cooled in the water, should be hard and brittle when taken out; but when placed in the mouth it should soften slightly, so that it is tough. When this time has arrived, pour the syrup immediately.

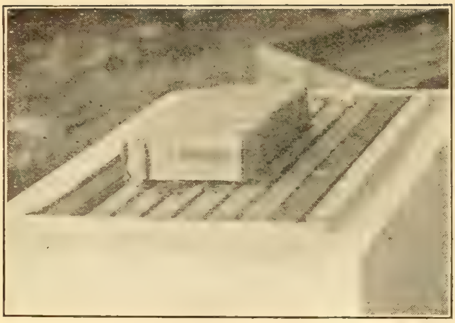

Fig. 3.—Cake of candy in position.

The color of the candy when cold should be about that of light amber honey. If it is darkened very much it is scorched and unfit for the bees. To prevent the scorching, reduce the fire toward the last so that the syrup will boil but slowly.

We find that the block of candy is made tougher, and that it is less likely to assume a granular form so that it crumbles to pieces, if a small amount of honey is mixed with the syrup. About one pint of honey to 25 lbs. of sugar is sufficient. We also find that a given amount of sugar will make very close to an equal amount of candy. In other words, if one desired to make up 50 blocks of candy about the size shown in these illustrations (which average 5 lbs.) he will need to get ready about 250 lbs. of sugar.

If the boiling is done in a kettle it is a good plan to put in about half a teaspoonful of lard in order to prevent the mixture from boiling over.

If the paper pie-plates that have been mentioned before in these columns hold enough candy, the syrup, when it is ready, may be poured into them; but ordinarily a somewhat larger amount of candy is necessary. The pie-plates hold about 1½ lbs. of candy.

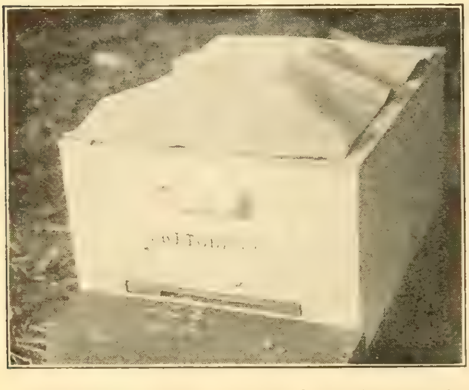

Fig. 4.—Sheet of enameled cloth laid over the candy.

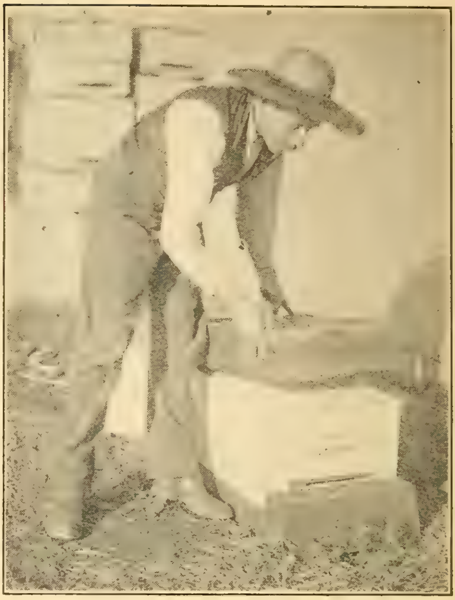

Fig. 5.—Covering up the candy with a chaff-tray.

The cakes of candy shown in these illustrations are about 1½ inches thick, 6½ wide, and 9½ long, and they weigh, on the average, 5 pounds. Forms should be made of proper size, which will make the cakes of candy smaller at the bottom to facilitate their removal when cold without taking the forms apart. Before pouring in the candy, line the forms with wrapping paper, folding the corners neatly.

The appearance of the finished cake of candy is shown in Fig. 1. When giving candy to the bees, lay three or four small sticks across the top-bars in order to leave a bee-space underneath, Figs. 2 and 3. Lay an enamel cloth on top, Fig. 4, over which set the chaff-tray or super containing a chaff cushion as the case may be, Fig. 5.

The bees start working on the candy at once; and after a week's time, if the cakes are lifted, Fig. 6, a line of grooves corresponding to the space between the top-bars is the result, said grooves being eaten out by the bees.

Fig. 7 shows a close view of the candy after having been in the hive just one week. By this time the three spacing-sticks will have become imbedded in the candy to some extent; but the spacing is not so important after the bees have once eaten some of the candy, forming passageways.

Fig. 8 shows the remains of a paper pie-plate of candy that has been in the hive for several weeks. The plate retains its shape

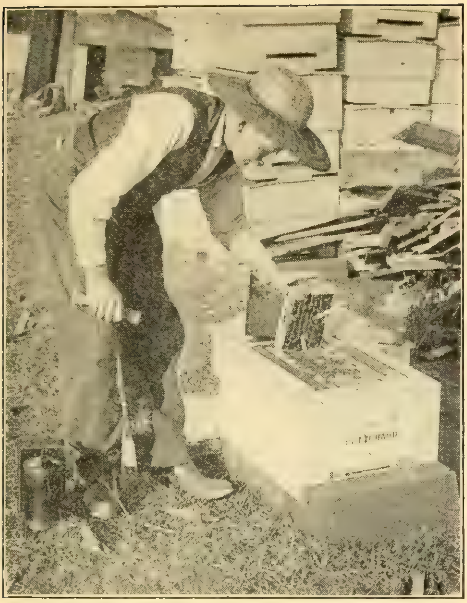

FIG. 6.—Examining cake of candy after being in the hive a week.

fairly well, even to the last, although, of course, when the candy is about gone the bees gnaw the edges to some extent.

We are wintering enough colonies on hard candy alone, without any liquid honey or syrup whatsoever, to give the plan a thorough test. So far all is well, although we shall make a fuller report later on.

On Dec. 4, when we made the last examination, we found brood in all stages in many of the colonies. The great blizzard occurred Nov. 9—11; but the weather during the last half of the intervening period was quite warm.

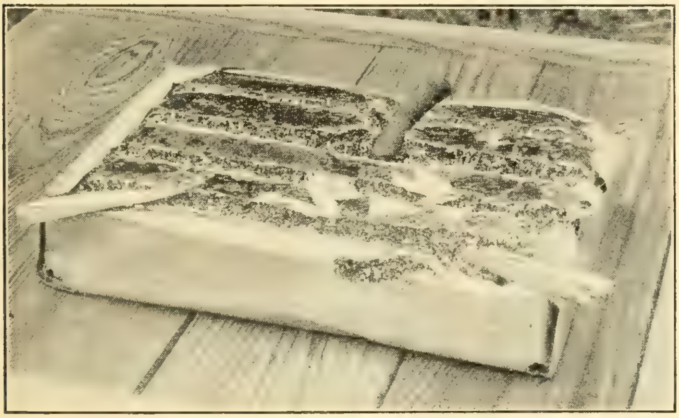

FIG. 7.—A close view of a cake of candy on which the bees had been feeding one week. The grooves show the amount the bees had eaten.

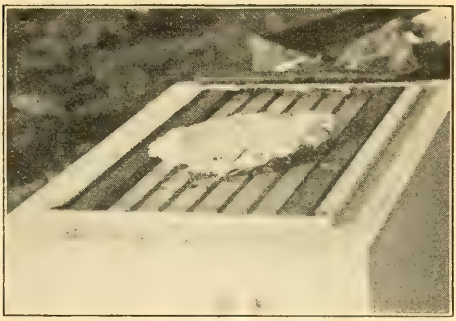

FIG. 8.—Paper pie-plate of candy left in the hive until the candy had been practically consumed.

Mr. Pritchard believes that hard candy is the best material to feed in an emergency during cold weather. It may be that in some cases it might pay to winter bees on candy alone throughout the whole winter, although the bees having the candy seem to be somewhat more active and more inclined to fly than bees having sealed stores of sugar syrup or honey. No doubt this is because the food supply is always opened up, so to speak, thereby placing the bees in very much the same situation that they would be in if they were being fed slowly.

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BEES AND POULTRY, OR JUST BEES FOR THE EXPERT APICULTURIST

BY O. L. HERSHISER

It is to be presumed that the poultry enthusiasts will come forward in the special number opened for a discussion of their interests to show how that occupation may be taken up by the beekeeper with profitable results. If it be permissible for one who holds adverse views to gain admission to this poultry circle, and raise his voice above the din of cackling and crowing I should be pleased to say a few words.

Can an *expert* apiarist afford to divide his time and attention, and devote a part to poultry? The results of close observation and careful calculation prompt me to answer, emphatically, *no!*

I have an acquaintance who is abundantly able to carry on the poultry business in the most approved fashion, and he is noted for his strict attention to the details of his business enterprises. Some years ago he launched into the poultry business with a zeal born of a determination to make it a financial success. Eight thousand dollars was invested in a strictly up-to-date plant. His best season was some years ago when 25 cts. per dozen was realized for his entire output of 3000 dozen eggs, and his gross receipts for the same were, therefore, $750. As the plant was run for eggs, the receipts for breeding stock, eggs for hatching, and poultry for table use, are inconsequential. From the total gross income must be deducted cost of feed, interest on investment, taxes, and other lesser items, such as heat, egg-containers, help, etc.

Only superficial mathematical calculation is required to show that there was little or no real profit in poultry for this individual out of the sum slightly in excess of $750. Allowing for eggs for hatching, poultry for breeding and for table use, must first be deducted interest on investment, $480, and taxes at the rate of over 20 per thousand, or at least $160, making the sum of $640. Then we have remaining very little for all the other items of expense and profit. It is needless to say the business has been abandoned and the plant gone to destruction.

As the writer had an apiary of from 75 to 150 colonies of bees in one corner of the plot of this poultry establishment for several years, a fairly accurate comparison may be made. The best season with the bees was a crop of 8000 lbs., about 2500 of which was comb, for which an average of 11 cts. per pound, or $880, was realized. Expenses consisted of rent of yard, $25 per year; cost of sections, foundation, cases, and help, in all not to exceed $180, leaving for the season a profit of at least $700, and this on an investment hardly in excess of $1100.

I have in mind an apiary consisting of about 65 colonies, spring count, at this time increased to 118 colonies, situated 30 miles from the owner's home. The honey from this yard has been sold for a little over $625; and, allowing $175 as the value of the increase, it makes a total gross profit for the apiary of $800. Allowing $150 for all expenses, which would include interest on an investment of $1000, there is left $650 as the net profit, or 65 per cent on the investment. Figures showing as much profit for an apiary about a quarter of a mile from the owner's home could be shown; and figures showing over 100 per cent for an apiary about 15 miles from the owner's home could also be produced. The hired-help bill for operating these three apiaries did not exceed $20 except teaming and carpenter work in the honey-house construction, and these are not exceptional cases.

Except for a very few extreme specialists who have, by expensive advertising and years of persistent effort, succeeded in working up a demand for eggs for hatching at several dollars a dozen and birds at scores of dollars each, where are the poultry-men who can show the net profits from their investments that the expert beekeeper can from his?

Out-apiaries need be visited only at intervals, and are left for the winter months without attention, and may be left for weeks at a time during the summer months without detriment; but the poultry-man must give his fowls daily attention, at least in the matter of feed and the gathering of eggs. Indeed, any success with poultry depends upon the strict and critical attention of the man behind the hen, *and he must be in evidence daily.*

Operating several out-apiaries by a man living in a village or city where neither bees nor poultry could be kept, is entirely practicable; but the keeping of one or several poultry establishments successfully at such long range is unthinkable.

Extracted honey does not deteriorate appreciably if kept one or several years, when market conditions may warrant it; and even comb honey may be successfully carried over the winter if necessary; but the poultryman must sell his eggs and dressed poultry when fresh, regardless of market conditions. After all his " fuss and feathers " with the plumaged tribe, the average poultry-keeper receives a net compensation for his work and attention that would make the beekeeper's occupation look like a failure.

I imagine the poultryman who finds the close attention required in his business a bit wearing would find restful recreation and satisfactory profit in keeping bees provided he has the natural adaptability for it; but if the expert apiarist wishes to make more money without the close daily attention required in the poultry business, and has a few hundred dollars to invest, let him establish some out-apiaries and " keep more bees."

This is not to be taken as advising against the keeping of a few chickens to provide fresh eggs and poultry for the home table, nor the keeping of poultry by the beekeeper situated on the farm, where the details can be attended to by hired help, and where more or less cheap feed is available — nor the keeping of poultry as a pastime, where the pleasure of the occupation is the chief compensation.

Kenmore, N. Y.

Heads of Grain from Different Fields

Power Extractor vs. Hand Extractor

I began to work with bees twelve years ago. I did not know how to use a smoker nor how to get the bees out of the honey-supers. I have gained much valuable information since then from reading about how to care for bees, and from experience.

At first I ran for comb honey; then I ran part of the bees for extracted honey, and used a four-frame honey-extractor; but I found that it was nonsense to use a hand power extractor if there is much extracting to do. I made a mistake when I bought the hand power. I traded it and bought an eight-frame automatic extractor and a 1½-horse-power gasoline engine to run the extractor and to pump water. I back the wagon up to the pump at an out-yard and let the engine pump a tankful of water to water the bees. This is a great saving of labor, and it will pay for itself in two or three years if one has much extracting to do. The honey gets thick, and candies fast as the weather gets cold in the fall; and it is hard work to turn the hand-power extractor when the honey is thick.

I use a push cart and haul from four to six extracting-supers, and eight or ten section supers at a trip.

A motor wagon would be handy to haul honey and bees where the roads are good. I have hauled hundreds of colonies of bees with horses and wagon, but it is necessary to be careful to shut the bees up well, and not have the horses near the bees when the hives are opened.

A small honey-house is handy at an outyard to store bee supplies and to extract and store honey; but the honey-house needs two doors—one at each end, on account of robber bees. One door needs to be double, as the eight-frame extractor and honey-tanks will not go through a narrow door. When the bees are thick at one door where they smell the honey, there will be no bees at the other door where they can not smell it.

I made a mistake by not working for a beekeeper two months or one summer to learn how to work with the bees and how to take the honey, as it is slow work for a beginner.

A honey-house may be in the middle of a bee-yard if one uses a motor truck; but I use horses, and I want it at one side of the yard, so I can load or unload supplies or honey at any time in the day. I have hauled some honey home from outyards to extract it, but I prefer to have a small house at each yard.

I need one small table in the honey-house, high enough to scrape and case the comb honey, and a low table at the end of it. The two take up the length of the room. I want it high enough to put a 50-lb. lard-can under the gate to the extractor when it is on this table. Sometimes I pile more than 200 section-supers on one table at one time, all full of honey. I make the frame of a table out of two-inch lumber and slant the table legs a little at the bottom, at the ends, and at the sides. I have six legs to a table if it is a long one. Where ants are bad, tables are necessary. It is well then to put small tin lids under the table legs, and to put a little pine tar in them.

Chamberino, N. M., Apr. 4. THE BEE MAN.

A Queen whose Eggs do not Hatch

I have been a beekeeper for the last twenty years, and thought that I had seen about all the turns in the bee business; but I have run across something new to me, for we have a queen that has been laying prolifically for the last two weeks, and there is not one single egg hatched that we can find. She is a queen about four weeks old. I don't know her exact age, as we bought her mother this spring from a Texas firm and introduced her; and the queen that we got from Texas was laying nicely, so we quit watching her till we noticed that they were not building up as we thought they should, then we found that she had been superseded, and a young queen was in the hive; and now the young queen's eggs do not hatch. Can you tell any reason for their not hatching?

San Jose, Ill., June 21. FRED TYLER.

[Once in a great while we run across a queen whose eggs do not hatch. No reason can be given for this; but it is evident that you had such a queen. —ED.]

Do King-birds Eat Bees and Queens?

Question No. 4, page 557, October *Farm Journal*, is, "The king-birds here eat my father's bees, and sometimes catch the queens. Should they be protected?" The answer is, "Yes. The king-bird feeds on beetles, canker-worms, and winged insects. He does occasionally eat bees; but ornithologists declare that he selects only drones, and does not do enough damage to hurt the hive seriously."

I want to know if the answer is correct. I have watched them eating bees a considerable time after the workers had destroyed or ejected the drones. As the *Farm Journal* editor says, the king-bird does not hurt the *hive*, but he certainly hurts the colony if he gets only one worker, as every little (one) helps, you know.

Abilene, Texas, Nov. 4. M. E. PRUITT.

[Ornithologists generally agree that king-birds do not eat worker bees; but we have had reports showing that the crops of these birds had been opened, and that scores of worker bees had been found therein. It has generally been claimed, however, by ornithologists that they eat only drone and queen bees. —ED.]

Experiment in Fitting Comb Honey in Sections Successful

I was greatly interested in the article by Dr. Humpert, Oct. 1, p. 674. I have only five colonies of Italian bees in eight-frame hives. In the summer of 1912 I worked with shallow extracting-frames on each side of the super, filled up with 4¼ x 4¼ plain sections and fence separators. I had a customer who offered to take all the honey produced by my bees; and as I was getting fifty cents for section honey I naturally wished that the extracting-frames were all sections. After thinking it over, I decided to cut out the honey and fit it in sections and give it to the bees to fix, which they did in fine shape. This was during a light flow from balsam. I left the sections on for five days, and received fifty cents each. I found that the best way to cut the honey was with a small fret saw.

Tuxedo Park, N. Y. E. WILSON.

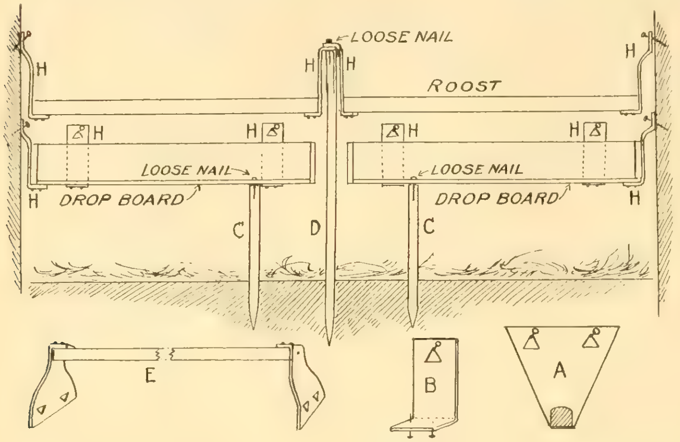
To Hive Swarms Clustered on Fence Posts

On page 790, Nov. 15, in speaking of places where swarms settle, you say that in many cases they seem to take particular delight in settling on one of the posts of the wire fence where it is a slow and tedious operation to get them. In cases like this, if you will set the empty hive on the ground near the post, and strike the post a heavy blow with an ax or heavy stick, the jar will dislodge the bees and they will fall at entrance of hive as nicely as though they were shaken from a small limb or basket; then a little smoke puffed on the post will stop them from crawling up again. I would rather have swarms alight on posts than on trees.

Filion, Mich., Nov. 24. DAVID RUNNING.

Removable Roosts and Dropping-boards

For some years I have used the arrangement for roosts described in the accompanying engraving, and found it convenient. It is my own idea, and I do not know that any one else has any system like it. I have not given it to any poultry journal; but if any one thinks it has any merit I shall be glad if he makes use of it.



A, piece of galvanized iron cut 10 inches, triangle shape (nailed to the ends of the roost) with two holes in to hook on two nails in the side of the chicken-house (the nails should slant upward). B, hanger nailed under the droppings-board and supported by nails in the end of the house. C, broom handles driven deep in the earth floor to support the droppings-board with a ¼-inch hole bored through so that a ten-penny nail can drop in. D is a similar support for roost hangers. E is the roost turned bottom up on the floor for small chicks. The perch is then 7 inches high.

The advantage that this system has is that, with a 7-inch hoe having a handle 4 ft. long, and an iron water-bucket, I can clean the droppings-boards from 50 hens, and throw on three handfuls of road dust in about five minutes.

Furthermore, all the hangers (iron) and supports are easily kept greased with crude oil or soft grease with a paint-brush, and will last some time. Then if the roosts hang 12 or 14 inches from the wall, no insects can get to the hens.

Finally, the droppings-boards, being 15 inches from the floor, the hens can go under them and use all the floor space, and the sun can shine underneath also. If wanted, straw can be spread all over the floor for scratching, and all this arrangement can be taken out to clean or oil, and put up again in a few minutes; and it can be easily and cheaply made, the galvanized iron can be cut, including nail holes, with a sharp cold chisel on a hard-wood block if no tinner's shears are handy. My droppings-boards are made of soap-boxes.

St. Louis, Mo. CHAS. W. COLLETT.

Bees Kept in Poultry-house

Bees may be nicely kept in a poultry-house if it is kept as a poultry-house should be. I built such a one last year, and it practically does not need a thing after it is ready for the poultry to make it ready for the bees, and the bees do not take up any of the room that poultry would use. One has to visit the poultry seven hundred times a year (twice a day), and they also have to be provided with an enormous lot of feed; but the bees will get along with only two visits a year, and no feed, or feeding only what they supply themselves, so I do not see why one should not combine the two; for if one pays, the two ought to pay better.

Grand Rapids, Mich. J. A. PEARCE

Blue Ointment to Kill Lice on Poultry

In a recent issue of your magazine Mr. A. I. Root mentions having trouble in keeping his fowls free from lice. The poultrymen in this vicinity apply blue ointment around the vent, and consider this treatment one of the most valuable discoveries for the prevention of body lice on fowls that has been made for some time, as one treatment will usually keep the birds free of lice for from four to six months. The body lice go to the vent to drink, and, not being able to cross the ring of blue ointment, perish.

The blue ointment must be specially prepared by being softened with vaseline, as the ordinary article is too hard to spread. The method of applying is to take a small amount on the end of the finger and hold it against the bird until it melts, then make a ring. It must not be used on young chicks, as it is too strong, and will kill them; but it can be used after they are six months of age. It costs here 50 cents for half a pound, which is enough for a small flock for a year.

The best time to apply is in the evening, just after the birds have gone to roost, as it is easiest to catch them at that time.

Tacoma, Wash., Aug. 6. DWIGHT WHITMAN.

The Poultry Journals Criticised

I'm getting disgusted with the poultry journals. About all there is in them is a write-up of "Jones' fancy strain of White Leghorns that we visited last week," or "It will pay our readers well to visit Smith's poultry-yards and see his strain of fancy new-fangled breeds," and, of course, plenty of advertisements of the different breeders and supply dealers, which is all right if there were only some practical articles on the problems that are daily confronting the man with a flock of utility hens which he is keeping for production, and not just to sell fancy-bred stock to another buyer at a high price for him to raise to sell to a third party at a high price, and so on. SUBSCRIBER

[It is true that a large proportion of the poultry journals are filled up with "puffs" for this, that, and the other; however, there are some good journals that are strictly high-class in every sense of the word. —ED.]

A Profit of $2.20 per Hen; a Chicken that Learned to Eat Drones

In the fall of 1911 we moved into a rented place on which there was no poultry-house; but as we had 15 hens, 13 of which were pullets, I made a coop out of three drygoods-boxes. The following spring I fenced off a plot surrounding this coop with poultry-netting, and confined them. This plot was about four rods square, containing three large apple trees under which I placed 16 colonies of bees. My investment for coop and fence was about $5.00.

Besides giving me a profit of $2.29 per hen they performed valuable service by banishing the wood ants from the bees. When I first put my bees in this place these ants were very numerous, and swarmed all over the hives. I went for a shovel and sought out their beds, dug them up to start the chickens scratching, and they did the rest. By scratching up their beds and eating their eggs the ants decided it was too warm a place and moved out.

Bees and chickens lived peaceably together all summer. One pullet learned to eat drones, and would catch them at every opportunity; but I never saw her catch a worker.

Ogden, Utah, Nov. 28. JOSEPH H. PETERSON.

An Enthusiast in Florida

This is our sixth winter in the State, and our fourth one here. One winter was spent on the east coast and one at Winterhaven. We have a home here. We like it very much. I have been a Methodist minister for over fifty-three years. I shall soon be 76 years old. I am fond of fishing, bee culture, and chicken-raising. I bought three stocks of bees last spring; transferred and Italianized them, and out of the three I made seven. I lost about half of the queens by the king-birds. The bees are all in hives of ten frames. I started north July 3, getting back again Nov. 6. There were two hives in fair condition. The other five were nuclei. I put supers on six of the hives. The bottoms of the hives were all well filled. The supers on the two best were well filled—32 sections from one, and 31 from the other. Another had 17 sections, another 16, and the last had 4—100 sections, 4 x 5. All had very good honey. I do not think my bees will be idle more than two months in the year. JAMES G. TETU.

Tarpon Spring, Fla., Nov. 24.

A Bunch of Questions

I have 18 stands of bees, and am going to buy 30 stands in the spring. Part of them are in crooked combs, but in L. frames and dovetailed hives, so the ones in crooked combs I shall have to transfer to straight combs. This is a fair locality. Please answer the following questions:

No. 1. What kinds of Italians are the best—the golden or leather-colored? Are they the stock you look to for your surplus honey?

2. Do you practice spring feeding to stimulate brood-rearing when the colonies to be fed have plenty of honey? What proportion do you use of water and sugar? and is there any preference in favor of beet or cane sugar?

3. What kind of feeder do you use for this purpose? I have chosen the Boardman entrance feeder. Is there any danger of starting robbing where the feeders are kept clean and no syrup is besmeared on the outside to entice the bees.

4. What time in the spring should I transfer my bees? My plan is to wait until the weather gets warm and quite settled, and then drive the bees and queen into a new hive, put a queen-excluder on top of the old hive, and let it remain for 21 days; then drive the rest of the bees into the new hive.

5. In three weeks I want to divide the new hive and introduce a new queen of the best stock. Is that the right time?

6. When you divide your bees in the spring, say a ten-frame hive, how many stands do you usually make from a strong or average stand, considering the honey crop more than increase? How long should the queenless part be without a queen? Do you put wire cloth over the entrance for two or three days? This last part would consume lots of time for an outyard four or five miles distant. Is the above way a practical plan, or is stuffing the entrance full of grass a better way?

7. In buying queens with ½ lb. or 1 lb. of bees, is there any advantage in buying the bees to be only a sort of pad to the queen to prevent injury to her? Should the bees be introduced along with the queen to my queenless colonies?

8. Do you practice pinching queen-cells through the swarming season to prevent swarming? I am going to run ten-frame hives for comb honey, and eight-frame for extracting. Do you use full sheets of thin foundation for sections? Is there any real gain by it? Do you use bee-escapes for releasing the bees from the supers?

9. In raising a few queens to restock with, will the bees make a queen-cell out of a regular-sized honey or worker cell? In Bulletin 49, by the Department of Agriculture, Albany, N. Y., the instructions are to take a frame that has had brood in it once or twice; cut two rows of cells, and leave one. Then let the frame be cared for by a queenless colony; but it does not state whether it is to be drone-cells or not. Would not the regular cells be too small for queen-cells?

10. What kind of wire cloth should I use to make cages for caging queens? Can I get it of the regular dealers?

Belle Fourche, S. D., Nov. 30. W. A. LOSH.

[1. As a general thing we prefer the original strain of Italians—the leather-colored ones. There are some fine strains of goldens; but most breeders of them have apparently overlooked the business qualities, and breed for color only. This is the reason why so many of the goldens are inferior.

2. The practice among our best producers is to feed liberally in the fall, and to avoid spring feeding as much as possible. Still, there are times when stimulative feeding in the spring can be practiced to advantage. But very often a beginner does more harm than good. For stimulative feeding we use equal parts of sugar and water well stirred together. For fall or winter feeding, we use two parts of sugar to one of water.

There is no preference between the two sugars; in fact, there is no possible way of detecting the difference, even by the best chemists.

3. Of all the feeders on the market we prefer the Boardman. It is excellent for stimulating, and does well in early fall in feeding up for winter. It is not, however, suitable for late feeding. Where one desires to give a colony its full supply of stores at one or two feeds it is too small. In this case the Miller feeder is better.

The Boardman will not cause robbing if one will use ordinary precaution. The outside of the cans and the feeder blocks must be cleaned of any daub of syrup, and the colony must be strong enough to put up a fair defense at its entrance. In feeding weak nuclei an inside feeder, or, better still, slabs of candy are better.

4. The best time to transfer in the Northern States is in the spring during fruit-bloom; but the work may be done at any time of the year providing there is no danger of robbing. If practiced during the clover flow it will cause more or less of an interruption with the colony; and if the season has been on for any length of time it means the cutting up of combs that are heavy with honey. By transferring in the spring during fruit-bloom it avoids this.

Your plan of procedure as outlined is not quite clear to us. It we understand you correctly you mean that you drive the bees with their queen into a new hive on empty combs or frames of foundation. We infer that the old hive is left on the old stand, and that the new hive with its bees and queen is put on top of the old stand, with perforated zinc between. If this is your plan you will be doing an unnecessary lot of work. Better by far remove the old hive from its stand a few feet. Put the new hive on the old stand and drive most of the bees with the queen into the new hive. Then 21 days later, after all the brood is hatched in the old parent hive, shake the rest of them in front of the entrance of the new hive; finally remove the old hive with its combs, which may now be melted up into wax.

5. The answer to this question will depend somewhat on the mode of treatment adopted in the answer to No. 4. If you are running for increase you can divide. If you are running for honey, we would not advise you to make the division.

6. As a general answer to this question, we would state that, if you desire to make increase, you should not practice dividing. If you desire to make increase and honey both, practice the Alexander method as described in his book. Four or five nuclei can be made from one strong colony; but this is on the basis of no surplus. As a general proposition we would advise making all increase after the main honey-flow is over, and then resort to feeding if the bees need stores. When practicing dividing it is usually necessary to shut up the entrances of the nucleus (moved from the old stand) with a little grass, for two or three days. Grass is better than wire cloth, because it will wilt away, releasing the bees without the aid of the beekeeper. But a far better plan where one has out-apiaries is to move the divided colonies from an outyard. In other words, make the division in some yard other than the one in which they have been stationed previously. Try as you may, splitting a good colony into several units, in the same yard, will result in a part of the flying bees going back to the old stand. The veteran beekeepers know how to overcome this to a certain extent, but not entirely.

Every nucleus should have a laying queen, a virgin, or a cell, as soon as the division is made; otherwise valuable time will be lost. Another thing, a nucleus, as a rule, will not produce cells that will result in strong, vigorous queens.

7. Packages of bees without combs can be sent with or without combs. The presence of Her Majesty does not, so far as we can discover, detract from or add to the success of the shipment. If a pound of bees, however, is given to a nucleus with a queen, the latter should be caged in an introducing cage for 24 or 48 hours. It might be advisable, also, in the case of hybrids or cross bees, to smoke both lots a little before uniting.

8. It is the general practice of honey-producers to destroy queen-cells at the beginning of the swarming season. Swarming-cells, if left unmolested, are almost sure to cause swarming.

You had better run your eight-frame hives for comb honey, and the ten-frame for extracted. In producing comb honey it is always advisable to use full sheets in sections. Starters are used by the manufacturers of bee-supplies for the reason that sections with full sheets do not ship well. Aside from this, there is no reason why starters should be used except on the ground of economy, and a poor economy it is.

We use bee-escapes when we can. Sometimes at outyards we shake and smoke the bees out of the supers.

9. In the instructions above referred to, worker-cells are probably meant, both on the ground of convenience and because they might be accepted more readily for queen-cell purposes. Before you expect the bees to work out these prepared cells, all other brood in the hive to which they will go should be removed first. If you succeed by this method you will need to follow carefully the directions in the bulletin referred to.

10. Ordinary black painted wire cloth will give good results. Do not use any wire cloth painted green, on account of the Paris green in the paint. A two or three frame nucleus with a queen will ship almost anywhere with scarcely a failure.—Ed.]

Danger of Spontaneous Combustion

Referring to page 599, Sept. 1, do not store waste in an empty hive, in a box or a small building, but in a tin box with tight cover. Never let waste touch wood nor get air to feed any flame that may start in it.

Spontaneous combustion is one of man's worst enemies, being but little understood, and working silently day and night. It requires just enough air to combine with the combustible to raise it to the temperature of ignition. A draft of air would keep the temperature down and prevent it.

An empty hive is an ideal place to start a fire by spontaneous combustion; but in a tight tin box the heat passes through the tin, lowering the inside temperature, and in case of spontaneous combustion the tight tin keeps the air away from the fire, allowing it to smoulder without danger.

Hammonton, N. J., Sept. 7. C. E. Fowler.

One Cause of Dark Wax

If I boil bee-comb in an iron or metal kettle to extract the wax, will the wax be a dark color?

Williamson, Pa., Dec. 1. L. H. Lindemuth.

[Wax will not be darkened in an iron kettle unless you let it boil for a considerable length of time. The best way, as soon as the wax is melted, is to dip it off immediately; then you will find no discoloration. An iron kettle will discolor wax a great deal less than a receptacle of galvanized iron, or, in fact, of almost any other metal except the plain iron. The important thing is to see that the wax is dipped out and cooled as soon as it is melted. Wax kept hot for an hour or two, or longer, will invariably be discolored. The longer it is kept hot, the darker it will be.—Ed.]

CONVERSATIONS WITH DOOLITTLE

Continued from page 9.

or those produced from queens reared from an imported mother, allowing these queens to mate with whatever drones there were in and about the apiary, as such crossing would give additional vigor to an already vigorous race of bees.

“Allow me to sum up this matter briefly from a standpoint covering a period of nearly forty-five years: Except for the breeding of queens for market, I would say, first have your queens mate with drones as distantly related to your queen mother as possible; second, use queens as closely related to imported Italian stock as possible, where working for extracted honey, for there are no bees in the world, in my opinion, that excel those one generation from imported stock for large yields of extracted honey. Third, where white capping of combs becomes one of the great objects to work for, as is the case where working for section honey, choose the golden Italians on account of their qualities in that direction. These bees are in no way second to Italians from imported stock as to their honey-gathering qualities. They simply use, of that gathered, only enough to give the nice white cappings required when producing *fancy* section honey.”

Our Homes

A. I. Root

Let him that thinketh he standeth take heed lest he fall.—I. COR. 10:12.

Create in me a clean heart, O God, and renew a right spirit within me.—PSALM 51:10.

He that ruleth his spirit is better than he that taketh a city.—PROV. 16:32.

Every little while I get to thinking I have got past at least *some* of my weaknesses of early life, and that I am now, in advanced age, making a pretty good record as a citizen and as a Christian; but it almost seems sure, after such reflections, that Satan gives me another pretty severe "tussle." I think that one of my experiences of recent date may be helpful to some of you.

This is the third winter I have been running the Sears automobile I have told you about, and it has given me more satisfaction during the past six weeks than ever before. It has not been to the shop once, for Wesley and I have been able to make all repairs needed. After standing untouched during the whole summer, with gasoline left in the tank, it started right off promptly.

Now, while the *machine* has been all that could be desired, the compound pump sent with it, for pumping up the tires, has been giving a lot of trouble. It has for some time failed to pump up the tires *real hard.* Ernest always scolds because I let my tires get down so soft. I tell him there is less "jolt" in riding; but he maintains (and justly) it is harder on the rubber tires, and takes more power. In turning corners it is also much harder work if a tire is partially flat, because a larger surface has to twist round on the pavement or sandy road, and this twisting also wears the rubber tire much faster. First, oil worked over into the small rubber air-tube of the pump, cutting the rubber so it clogged. A big wire pulled through several times removed two bits of rubber. Then I had trouble and worry in finding how to get the double cylinder apart. When I finally got at the plunger, one leather was worn through. Each time I found some defect I was "dead sure" I had remedied the trouble; but each time the pump failed to push up the tires *good and hard.* This pump that cost enough to do the best kind of work puzzled me, so I lay awake nights thinking about it. Why not take it to a garage? There are several reasons. We have a garage of our own in Medina, and I have been in touch with mechanical work all my life, and it hurts me to give up beaten. Very likely there is *some* foolish pride right along here.

It was my 74th birthday, but I had forgotten it at the time. I had worked in vain at the pump the day before, and was at it again until nearly noon. My nervous hands were covered with black grease, my back ached, and I was conscious I was getting in a bad frame of mind. That "alarm bell" was getting louder and louder. I was vexed and impatient. I didn't want any dinner, nor any nap before dinner. On this day *particularly* it was incumbent on me to be pleasant and smiling to Mrs. Root when I sat down to the dinner that she had taken unusual pains in preparing. A drinking man once said to me, "Mr. Root, I am on a horse I can't manage. When he goes I *have* to go." I told him that "horse" would land him in a *drunkard's* grave, and it did, not long after. As I struggled with that rebellious spirit I wondered if I, *A. I. Root,* was not in danger of being in a like predicament. Suppose a visitor or a group of visitors should call as they do almost every day, wanting to see and shake hands with the author of the *Home papers.* The thought of it almost made the chills run down my poor tired back. I rushed to my little room upstairs in our home where I take my daytime naps, and tried to sleep, but sleep wouldn't come. I had not yet "let go" of the pump, and, in fact, I could not get it out of my mind. I jumped out of bed, knelt down as I have done many times before, when, all at once, that wonderful prayer, that *beautiful* prayer of David's, occurred to me, and I prayed, "Create in me a clean heart, O God, and renew a right spirit within me."

Were ever words before framed to fit so exactly such a case as mine? I said mentally, "Now I can sleep;" but Satan was not ready to give up just yet. I remember thinking the prayer was not going to do any good, after all, *this* time. Let me pause right here. Unbelief and doubt are the result and a part of *all* sin. They go along together. But now listen: In spite of my *still* cherished rebellious thoughts and unbelief, the dear Savior, with his great patience and infinite love, had mercy on me.

In his arms he'll take and shield thee;
Thou wilt find a solace there.

That is just what happened. Oblivion came—blessed oblivion! My troubles were forgotten—wiped out. In half an hour I awoke, "clothed and in my right mind," and went down to dinner praising God, and the good wife who had provided such a beautiful birthday dinner.

In the afternoon I discovered the leather I was using was too thick and hard. In this kind of pump, where the plunger takes the place of valves also, a very thin soft yielding leather is needed, and in a little time the pump was sending out a stream of air *for certain,* and with force enough to make every rubber tire on each of the four wheels "stand up" so only a very small spot, comparatively, touched the cement floor; and when turning corners, especially on hard-surfaced roads, but a touch on the steering lever is all that is needed.

There is a great lesson for poor frail humanity in our last text. Great rulers and great generals must, as a rule, first learn self-control before they can expect to be chosen for important offices. One who allows himself to push ahead when he is vexed and impatient,* as I did, is a poor specimen of Christian, to say nothing more. I kept thinking I would have it all right in a few minutes, until I was too tired and nervous to do *any* thing well; and my old arch enemy saw his chance. While I think of it I thank God that it was only an inanimate object that I was vexed with, and not any fellow-traveler in this world of sin. I also thank God that, when I realized my "armor" had dropped off, and seemed to be lost, I made haste to apply to "the Lamb of God that taketh away the sin of the world."

Poultry Department

"THE HIGH COST OF LIVING—FOR CHICKENS," AND SOME OTHER MATTERS.

The above has been on my mind a good deal for some time past, and Mrs. Root and I have had some "jangles" about it because, as she insists, I tell all the pleasant things about chickens and say but little about the cost (especially down here) of wheat, corn, and oats. I am paying now for each 100-lb. sack $2.15, $1.95, and $1.90. I could buy a little cheaper in quantities, say in the city of Tampa, but I could not readily turn my eggs every day as I do at the grocer's toward my grain, which is delivered as I need it right to my granary in the center of the "convergent poultry-yards." But before we get down to "figures" let us read the letter below from a good brother who seems to be "worried" in regard to the matter:

> *Mr. A. I. Root:*—I have been reading your Poultry Department in GLEANINGS for some time; but there is one important thing that I should like to know. What is the average cost of feeding a hen for a year? I have heard that $1.25 or $1.50 will do it, but Green's *Fruit Grower* says that a healthy hen will eat $3.65 worth of grain in a year. If that is true I will get rid of my chickens, for there is no profit in them at those figures. I rely on your telling us in GLEANINGS.
>
> Cokeville, Pa., Nov. 21. JOHN MAJOR

If Green's *Fruit Grower* said as above, without any qualification, I should say they were careless, to say the least. It is possible that a large hen, laying 200 or more eggs a year, shut up (say on the Philo plan), and having little but grain, and the grain bought in small lots at the grocer's (at a big price), *may* eat a cent's worth a day; but I am sure not on the average. Look up the reports of our egg contests in the different States, and see what they have published in regard to cost of feed.

Our own chickens have a range of about five acres (if they care to go so far), and my feed bill with Buttercups and Leghorns for *grain* (wheat, corn, and oats) is only about ¼ *of a cent a day,* and this result was obtained where the grain was in galvanized tubs when they all helped themselves all day long. With my flock of 80 hens and ducks, half a dozen eggs (40 cts. per dozen at the grocery), 20 cts., paid for grain for the whole flock. Now, before a lot of you rise up in protest, listen. We buy oats every day; get lettuce and cabbage not fit to ship; provide Bermuda grass "pasture," and last, but *not* least, give them nearly all the ground bones and meat they care for, and the "chicken bones" are *given* me at the combined grocery and meat market in consideration of giving them our trade. A half-dozen eggs pays for all *cash* outlay. If you get three dozen eggs a day, which is certainly a very moderate estimate, you have a dollar clear every day for properly caring for your fowls.

Just one thing more. If the droppings from the roost are cleaned up every day they are, down here in Florida (where stable manure is $3.00 a load), worth quite a little.

Somebody may ask if it is not pretty extravagant to provide five acres of "run" for 80 ducks and chickens. Yes, it is; but the five acres cost me only $150 per acre, and just *now* the assessor appraised them at $400. Then comes the question, "Why not raise grain or something else for chickens on this idle land so as to avoid these expensive grain-bills?" I have for years been searching among "God's gifts" (for the people here in Florida) for something that will grow here and take the place of grain. May God be praised, for my search has been rewarded; and may he be thanked, also, for our Department of Agriculture that helped me to get it. Listen:

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* Giving way to nervous impatience, especially when assisted by drink, is probably the cause of a lot of the murders, followed by suicide, that are now chronicled in almost every issue of our daily papers. When Satan gets his victim well started he crowds him ahead with relentless haste, making the most of his opportunity.

Just before going back north last April my good friend Bannehr, of Manatee (a beekeeper), gave me some canes and roots of cassava, and told me to plant them, saying that the roots were "good for chickens," etc. Now, to illustrate how we often neglect and pass by some of God's most precious gifts (sweet clover?) I shall have to own up that, after throwing the roots to the chickens, and finding they didn't seem to notice them, I let the canes lie around uncared for until Wesley said he knew how to plant them, and so he cut them up and planted perhaps a dozen pieces that looked about like corncobs. When we were planting dasheens the cassava was just peeping above the ground, and I told Wesley he might as well chop them off, as I didn't believe they were of any use. Well, either Wesley didn't hear or he didn't get around to it for some reason, and I forgot all about the cassava until we got here a few days ago, when all at once I said:

"Why, Wesley, what are those great branchey *trees* down among the dasheen?"

"Why, Mr. Root, that is the *cassava.*"

"Do you mean they have made all that growth in the past six months?"

By my direction he dug some roots as big as my arm, and a yard long or more. After taking some pains to teach the chicks, they soon ate them with avidity—no cutting up nor any preparation needed. Then I sent to Washington for a bulletin (No. 167) which I recalled having seen. Let me give you some clipping from said bulletin:

> If the entire crop is not wanted for use during the winter following its growth, a part of it may be left in the ground for another season, as the roots will continue to grow several years if not disturbed. Roots which have grown two or more seasons often reach an enormous size, sometimes as much as 8 feet in length, and forming clusters weighing more than 100 pounds; but they become more hard and woody than at the end of the first season, and so are not as good for the manufacture of starch or for feeding as those which have grown only one season. When it is known beforehand that a part of the crop is to be kept until the second season, it is better to dig alternate rows, so that the plants remaining will be less crowded.
>
> MEANS OF REMOVING FROM THE GROUND.
>
> As the roots are of considerable size, often from 3 to 4 feet in length by 2 or 3 inches in diameter, and as they grow in clusters of from 4 to 8 on each stalk, a single cluster often weighing from 20 to 30 pounds, digging can not be done with a plow, as sweet potatoes are dug, but must be done by hand.
>
> FOR PIGS.
>
> Dr. Stockbridge states, in Bulletin No. 49 of the Florida Experiment Station, that when five lots of pigs were fed a period of seventy-five days, cassava gave a greater net profit and a greater percentage of gain in weight than did either corn, chufas, or peanuts, and a greater net gain in weight than did any except corn. The cost of the increased weight of the cassava-fed pigs was only 1.04 cents per pound, while the increase of the corn-fed pigs cost 3.06 cents per pound. In these tests the cassava was charged to the pigs at the rate of $6 per ton and the corn at 60 cents per bushel, these prices being somewhat more than the actual cost of growing the cassava and less than the usual market price of corn in Florida.
>
> FEEDING TO POULTRY.
>
> In localities where it is grown, cassava is used more commonly than corn in the feeding of poultry. It needs no preparation before feeding, as the roots are so tender that they can be eaten readily, and poultry eat them as greedily as do other kinds of stock. When fed alone cassava makes hens so fat that they do not lay well, as is the case when they are given an exclusive corn diet, so it is better to mix it with wheat, oats, or some similar nitrogenous feed. It is unsurpassed when fowls are to be fattened for market, as it makes a rapid increase in weight with very little expense
>
> One poultry-raiser at Orlando, Fla., who keeps from 500 to 700 fowls, states that he has fed cassava since 1885, and that it is the most inexpensive as well as the most satisfactory feed he can find for use in the place of corn, though it is not so complete a food as is needed by growing chickens and laying hens. Others who have used it for feeding poultry make similar statements; and it is the general experience that, when it is used as the principal food, from one-third to one-half a feed of wheat or oats should be added to the ration, and that the feeding of cassava saves fully one-half the usual cost of corn.

Our cassava is growing on ground that was for several years a chicken-yard. As it is desirable to change yards, a very limited piece of ground will grow the roots, and, after well started, the chickens may be let into the yard again. If I were to try to grow grain of any kind a horse would be needed. While it is a very small job to prepare and plant cassava by hand, and the harvesting for chickens is nil, as the great roots grow just under the surface, and the spreading branches soon keep down all weeds, and even Bermuda grass gives up trying to grow under rank cassava, the roots are almost equal to Irish potatoes for table use.

Mrs. Root will scold if I stop here without telling the other side, so here goes:

"THE OTHER SIDE OF POULTRY" IN FLORIDA.

It is the long wet summers, especially for those who live here only in the winter time. If you will turn back to p. 356, May 15, 1913, you will see that, when I left for Ohio. I had 125 chickens, none over four months old, and about 25 ducks; 150 fowls in all. I offered a neighbor all the duck eggs and all the roosters when they were big enough to sell for looking after them during the summer, I to pay all the feed-bills. What did the feed cost for the six months? Just about as many "dollars" as I had ducks and chickens when I arrived here in November. When I left in April I had a credit of about $38.00 at the grocery. It took all this and almost as much more to feed roosters and all. Sorehead or some similar trouble took off a dozen or two, and "varmints" a few more. Laying hens could be left with neighbors cheaper, it is true; but a lot of "youngsters" are "no good" for eggs, and often a "heap" of trouble. It would have been as cheap or cheaper to have "sold out" in the spring, and bought more in November; but who wants to *sell* young pullets just beginning to lay? Another thing, I wanted my especial cross of Buttercups and Leghorns. If I stayed here the year round, like neighbor Abbott, it would be much cheaper; but even he (who has several hundred laying hens) begins to think *bees* rather more profitable. They don't need *corn,* and seldom need sugar. While I think of it, neighbor Ault (the man among the big dasheens) in some of his apiaries here near Bradentown secured last season about 200 lbs. per colony. But this was an apiary of only about 25 colonies.

Just a word more about the chickens. I think our Experiment Stations find the large breeds need *more* grain than the Leghorns; but, if I remember, in one egg test the Rhode Islands Reds came very near taking the prize, and neighbor Ault says he had a flock of reds that, while they had access to a field of *alfalfa,* gave a big egg yield and had almost no grain at all. This reminds me that three laying hens, Rhode Island Reds, were kept all summer just for their eggs; and while eggs were 50 cts. a dozen in November I several times had an egg from each red hen. Let us go back to that letter from friend Major before closing.

Friend M., let us suppose you have no lettuce, cabbage, nor even a field of alfalfa, and that it does cost a "whole cent" to feed your hen one day. If she lays an egg that is worth *four cents* in the market, *or more,* can't you stand it?

DO THE HIGH-SCORING CHICKENS AT FANCY PRICES GIVE US THE BIG-LAYING STOCK?

An effort has been made to show that our great layers in the "egg-laying contests" are the outcome of the high-scoring standard fowls; but here is something that does not exactly agree if I understand it correctly. The clipping is from the *Pacific Poultryman.*

> Another claim to the world's chompionship for egg production has just been put forward. Professor Dryden, of the Oregon Agricultural College, gives a record of 291 eggs in a period of one year by a hen of mixed blood, owned by the college, which he claims is the best performance in the world to date.

I need hardly add that we have probably no better authority than Prof. Dryden. The above hen was probably a first cross, and, very likely, from standard breeds. See p. 624, Sept. 1.

GRASSHOPPERS AS A SUBSTITUTE FOR MEAT SCRAPS FOR POULTRY.

In the *Ladies' Home Journal* for November is a letter from a widow who did wonderful things with poultry by feeding them grasshoppers that she trapped, and then killed with formaldehyde. The account does not tell where she lives, but it says she trapped "eighty odd bushels" in two weeks, and she says it answers the place of ground bones or meat scraps wonderfully well. I confess that several times when I read of the grasshopper scourge in the Southwest I wondered if they could not be killed and dried so as to be preserved for winter rations for poultry. Can any of our readers tell us whether the above is fact or fiction?

MUSTARD FOR CHICKENS AND MUSTARD FOR TABLE USE; WHERE ARE THE MUSTARD-FIELDS?

I see in one of A. I. Root's articles he mentions receiving a barrel of ground mustard for his chickens. Now, I should like to know if mustard is grown anywhere in the United States in a commercial way; and if so, could there not be a way to get in communication with the growers, and order from them?

Town Line, N. Y., Oct. 15. J. H. Calkins.

Perhaps The French Co., of Rochester, N. Y., who advertise mustard for poultry, can tell us where the seed is grown, that beekeepers may locate near the mustard-fields, to the advantage of the grower as well as that of the beekeeper.

BANEFUL DRUGS; A WORLD-WIDE WAR AGAINST THEM.

Another evidence that God's kingdom is coming on earth is that the nations of the world are uniting in a war against opium and other baneful drugs. See the following, which we clip from the Cleveland *Plain Dealer:*

> Dr. Wright reported that up to date thirty-five governments have signed the opium convention, including the thirteen nations that joined in the first conference in Shanghai after the movement had been initiated by the United States. Some of these countries, notably Great Britain and Germany, are withholding their ratifications until the last moment, taking the ground that to be really effective the convention must have the unanimous support of all nations. So far twenty-six governments have agreed to deposit their ratifications, and they probably will be received at The Hague before December 31 next.
>
> All of the signatory powers are to meet at a third conference at The Hague after December 31, next, to agree upon the date when the prohibition of the use of opium and other baneful drugs shall go into effect throughout the world.

High-pressure Gardening

DASHEEN—MORE ABOUT THOSE IN THE PICTURE, P. 784, NOV. 1.

When neighbor Ault was digging that big hill of 20¼ lbs., I picked up one of the long leaf-stalks he cut off, and took it home to see if that would make a soup or stew as good as the little shoots. I took it, leaf and all, and Mrs. Root used the whole thing for soup, and it made about the best dish of dasheen we have had. Of course we peeled off the outside covering near the ground. Just think of it, friends! Suppose you could take a tall stalk of corn that had given a big crop already, and make two or more *good* meals of one *"cornstalk!"*

I have mentioned the fact that he used lime as well as stable manure. Well, he has just given me an additional fact in regard to his astonishing yield. When he came on the place he found a heap of little shells his predecessor gathered for some reason or other. Having no use for them he used them for stable bedding. After the horse had tramped them up fine he shoveled the manure and all around the dasheen. I wish our experiment station would tell us if these mashed shells might have had any thing to do with this enormous growth of the dasheen.

DASHEEN DATA—DASHEEN IN OHIO, ETC.

Dasheen purchased from the Brooksville Development Co., May 1, 1913, arrived and were planted May 10 on different kinds of ground. All grew and were up June 1. Dasheens planted on clay soils failed because of lack of moisture. One hundred and fifty tubers planted on sandy black loam did exceedingly well. Dug first mature tubers from them Sept. 1, 1913. They were entirely matured Sept. 15, dug on that date, the yield being six pecks.

None of these received irrigation; those receiving irrigation were frozen Sept. 22, 23, unmatured.

The average height of plants was forty inches; number of leaves about twelve. Dasheen planted here on suitable ground, and given ordinary cultivation, will mature.

Cedarville, Ohio. HARRY POWERS.

The above, with sample tubers, was submitted to the Department of Agriculture, and below is their reply:

Mr. Harry Powers:—Your letter of October 14 and the package of dasheens was received several days ago, and we desire to thank you heartily for the same. I have tested a few of the tubers on my table, and find them of very good quality. The quantity of tubers which you secured would hardly warrant your continuing the culture of the dasheen in Ohio, from the commercial standpoint especially, as the corms and tubers are very small; but if by irrigating and fertilization in the first half or two-thirds of the season you could stimulate the growth of the plants, you might obtain a considerably more satisfactory yield. It would be, of course, necessary to withhold water toward the close of the season, in order to allow the tubers to ripen. I may add that stable manure is probably the best form of fertilizer used.

I have to thank you again for sending us your report, and to congratulate you on the degree of success which you have attained. A smaller number of plants started indoors a month or more earlier, and then set out, would no doubt give a yield as large or larger. R. A. YOUNG,

Washington, D. C., Nov. 5. Scientific Assistant.

Permit me to suggest that the irrigated tubers that did not mature would have made an excellent stew, as I have several times described, and we prefer this stew of immature tops and tubers to any other way of cooking the dasheen. In regard to yield, on our Medina stiff clay soil we had about three bushels of tubers from 50 plants, some of them very small indeed. Now hold your breath and listen: I have just been over to neighbor Ault's, and saw the corm and tubers from one of his best hills (see picture on p. 784, Nov. 1). After being dug and washed there were 20¼ lbs., the product of *one small shrunken tuber,* in just about 8 months from planting. Besides a good dressing of stable manure, Mr. Ault says he sowed about a peck of lime and worked it in on his patch of little more than a rod square. It may transpire that, like the clovers, lime is *the* thing. One more valuable thing about the dasheen: Unlike the Irish potato, light, and even strong sunshine, improves the tubers instead of doing injury.

We clip the following from the *Manatee River Journal:*

That the dasheen is a coming food product of Florida is borne out by reports made by parties who have been experimenting in growing it. Mr. A. I. Root, of Medina, Ohio, who spends his winters in Bradentown, and has just recently returned, dropped in a few days ago and showed us a letter from Mr. Young, of the Department of Agriculture, and called attention to articles from Bradentown upon the dasheen in his paper GLEANINGS IN BEE CULTURE. The following is the letter:

Mr. A. I. Root:—I have recently returned from a trip to Hawaii, California, and the Southern States, to study the taro and the dasheen. I find your letters of July 21 and July 22, with proof-sheets of your articles on the dasheen. I wish to thank you for these and the continued interest you are taking in the introduction of this vegetable, which we believe will eventually prove of much value, especially in the Southern States. * * * I was in Bradentown early in October, and was greatly pleased with the dasheens grown by your neighbors, Mr. Harrison and Mr. Ault. They were the best I had seen up to that time, outside of our own planting at Brooksville, though the next day I saw a three-acre commercial field a few miles from Tampa that had made a remarkable growth. This was in muck soil that had been previously used for trucking.

R. A. YOUNG, Scientific Assistant.

Washington, D. C., Nov. 7.

In the November issue of GLEANINGS a letter and a half-tone picture of a mammoth dasheen is a contribution from Arthur E. Ault, of Bradentown. The plant pictured was between six and seven feet high, and he says the soil upon which they grow is a well-fertilized humus-filled sand, and that he ridged the soil with furrows six feet apart, planting two rows of dasheens to each ridge. He says the soil is moist, and there has been water in the furrows nearly all summer, and tubers were then forming rapidly. Mr. Root adds that dasheens are fair eating before maturity, but not at their best until fully matured, although the young shoots and tender leaves are all right, and make a good substitute for mushrooms or oysters, with a few crackers added.

As experiments indicate that the dasheen is going to prove prolific in South Florida soil, information about it is interesting at this time, though limited to experimental planting.

Later.—A mammoth dasheen is on exhibition at the office of Messrs. Wyman & Green, the largest that we have had the pleasure of inspecting. It is true that we have seen only two, the other being the one that was recently placed on exhibition at the *Journal* office; but this one is so large and well developed that we conclude it must be the limit. The hill weighed 19½ pounds when first taken out of the ground, and removing the small tubers it weighed 17½ pounds. They were grown by the Mr. Ault already mentioned. The largest before reported was 18 pounds grown up near Brooksville at the Government plant.

Mr. Ault's yield of dasheen, as given above, would be just about *1000 bushels per acre,* which is more than the Department of Agriculture has ever mentioned, even on small areas. Perhaps I should explain that he put on the plot quite a liberal dressing of stable manure which his chickens scratched into the ground quite thoroughly, He also worked ashes in between the rows. Aside from its great value as a table vegetable, it will probably be valuable for stock. Our chickens eat the large center corms with avidity. Mr. Ault's place is just over the fence from our own five acres.

The dasheen grown here on our place needs no sal-soda nor soda of any kind (to counteract the "acridity" mentioned), either in washing or cooking. The tubers for baking need only a brushing with a stiff brush before they are put into the oven, and for stews the stalk and stems, with small green tubers, need only rinsing and pouring the water off, as mentioned on p. 740, Oct. 15.

DASHEENS IN THE GREENHOUSE OR IN A BOX IN A WINDOW.

Our friends who are anxious to test the new food-plant can start them any time in the winter as they do tomato, cabbage, and other plants; and when spring comes, put them out when danger of frost is past. As they will grow with proper care higher than your head, they need a long season. Remember they are delicious food from the time they are an inch high until they are above your head, and every bit of the plant is edible, both above ground and under ground. My impression is, after the tubers are well seasoned they can be mailed safely all winter. We are testing the matter now, and will report. I hope some seedsman or some one else will soon advertise them by parcel post. I mailed 3 lbs. to Medina, and below is Huber's report in regard to them.

The package of dasheens reached me safely yesterday morning. No danger of any frost, for the weather has been very warm here for the last week or so. We baked some to-day. I ate five, and we all liked them very much. They remind me of roasted chestnuts, although a little drier, and flavor somewhat less pronounced.

ROSELLE, ANOTHER OF "GOD'S GIFTS."

Some time in the summer our good friend Reasoner, of the Royal Palm Nurseries, Oneco, Fla., sent over to our place about a dozen Roselle plants which Wesley planted and cared for until we arrived in November, when we found them covered with "fruit." You might not call it fruit by the look; but we recently had cranberries and roselle both on the table at once, and, although they taste and look very much alike, I much prefer the roselle. I am sure they can be grown in the North if started in a greenhouse like tomatoes, for some of our plants are full of fruit when less than a foot high. See clipping below from the *Florida Grower.*

Roselle, or Jamaica sorrel, or lemonade plant, as it is often called in Florida, is one of the hibiscus family. The flowers are solitary with a red and thick calyx. These calices, when cooked, make an excellent sauce or jelly, almost identical in flavor and color with the cranberry of the North. The leaves make an excellent and refreshing drink. It is hardly necessary to give recipes for the above. The calices are removed from the ovary and used in the usual way, same as northern cranberries. A salad may be made of the stems, leaves, and calices just as a turnip salad. A syrup that can be used for coloring purposes can be made of calices or stems and leaves, boiled in the ordinary way and sealed in bottles for future use. To make the jelly, use less than the ordinary proportion of sugar; it is excellent for cake, but is not as firm as guava jelly.

I think you can get seed, and perhaps plants, of Reasoner Bros., Oneco, Fla. If you want to know about the wonderful fruits and plants that can be grown in Florida write for their beautiful new catalog.

SHALL WE WIN BY "FIELDS OF BLOOD" OR BY THE "SWEAT" OF "HONEST LABOR"?

Here is an extract from an Armenian paper which states a truth that those who clamor for vast armaments should try to absorb into their belligerent minds: "It is an old and dead belief that a nation is as strong as the powerful army she possesses, and that she is as vital as her cannon is large. The fate of nations is built, not on the field of blood, but on that of sweat. It is formed in factories, in the depths of mines, on farms, in temples of art and science, through reformed and just administration, through the creative desire which runs after perfection, and which leads the nations toward moral greatness and material prosperity."

A hearty AMEN to the above, which we clip from the *Farm Journal.*

Gleanings in Bee Culture

VOL. XLII. JAN. 15, 1914, NO. 2.

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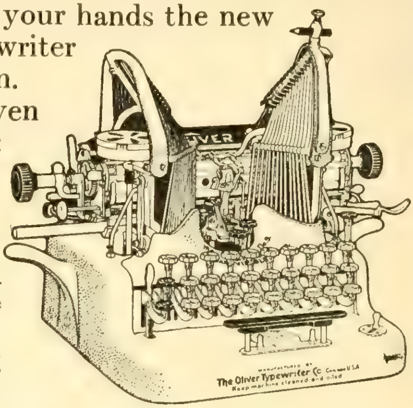
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Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.
A. I. Root, Editor Home Department. J. T. Calvert, Business Mgr.
H. H. Root, Assistant Editor. E. R. Root, Editor. A. L. Boyden, Advertising Manager.
Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLII. JANUARY 15, 1914 NO. 2

Editorial

Our bees on the Apalachicola River, Fla., are doing finely. Ti-ti is just about ready to open up, when the bees will have natural pollen and nectar.

Some recent reports go to show that California is having refreshing rains. Whether these are going to insure a crop of mountain-sage honey or not we have not yet been advised.

When we read the telegraphic reports of the floods in Texas we wondered how our bees on the Apalachicola River would fare, because they are on platforms but slightly above high-water level on the banks of the river. Fortunately for us, however, the floods did not visit that section.

THE FLOODS IN TEXAS.

In this issue, page 47, Louis H. Scholl tells of the awful destruction wrought by the floods in certain parts of Texas; of how he and certain other beekeepers lost many hundred colonies. The sympathy of our readers, we know, will go out to them.

OUR COVER PICTURE.

The cover picture for this issue shows Benjamin J. Mayo and his son at the edge of their picturesque apiary. The engraving, page 62, shows a larger portion of the apiary situated in a well-sheltered location. In addition to the particulars given in the article by C. B. Morris, page 59, Mr. Mayo himself writes as follows:

> I cleared a small part of my woods and made a beautiful grove for my growing apiary (as shown on the cover page); but as the bees did not build up as rapidly as I thought they should, I moved some into my orchard, a more open place (as seen by the picture on p. 62), where they got more sunlight. This solved the difficulty, as those in the orchard did far better than those in the grove, shaded so much. My spring count (1912) found me with fifteen hives of the dovetail pattern.
>
> I should also like to add my testimonial to the plan of Mr. Arthur C. Miller of introducing queens by smoke, as I have tried it with twenty queens and find it works every time.
>
> I have been running for extracted honey only, as I think the honey in this locality is too dark for comb. This I have been selling in three-pound packages at fifty cents, and have no difficulty in disposing of all of it. I think I increased too fast last season as my crop was not what I thought it should have been; but I did fairly well, getting 1000 lbs.
>
> Metuchen, N. J., Oct. 31.

THAT WINTER NEST AGAIN.

We recently received a letter from Mr. George B. Howe, of Black River, N. Y., one of the most prominent honey-producers and queen-breeders of that State, and a very close observer. Among other things he refers to the winter nest. As it confirms our position we present it here for what it is worth.

> I wish to say something on this winter-nest question. *You are right.* I go to the *bee* for all my knowledge. Go to any hive—better yet, a bee-tree; cut said tree and see what condition you find. Back to the hive! Unless you have fed said colony beyond all *bee* reason, again you will find that winter nest, and in cold weather a bee and sometimes more than one bee in a cell. The colder the time, the more compace that cluster will be; and unless you have studied this question you will not believe it possible for a large colony to get into so small a space when it is zero or below. The age of the queen does not change the color of her drones. The color of the comb may make a slight difference. Some claim this .
>
> George B. Howe.

THE SPECIAL NUMBERS FOR 1914.

For the last two years we have received occasional letters from readers who have overlooked announcements regarding special numbers, and who, after reading some one of the special numbers, jumped to the conclusion that Gleanings has "gone daffy" on the special subject in question. For instance, after the publication of our last poultry number, which was our regular Feb. 15th issue for 1912, we received a letter from a subscriber complaining because of the undue amount of space we were giving to the question of the raising of chickens. He pointed out that our Feb. 15th issue was almost all on that subject! Not being a poultry-man he was naturally afraid we were going to get too far away from the straight and narrow path of beekeeping.

As there have been other letters each year from those of our readers who have not noticed the announcement of our plan, we wish to mention again the list of special numbers for 1914. January 1 (last issue), bees and poultry; February 1, bees and fruit; March 1, beekeeping in cities; April 1, breeding; June 1, moving bees; August 1, crop and market reports; September 1, wintering.

THE NEXT NATIONAL CONVENTION TO BE HELD AT ST. LOUIS, FEB. 17—19.

Our readers will notice elsewhere that the next convention of the National Beekeepers' Association will be held at St. Louis on Feb. 17, 18, and 19. St. Louis has the reputation of being the most centrally located large city in the United States. As it is convenient from the east and west and from the north and south, there ought to be a large attendance. Mr. R. A. Holekamp, of the Holekamp Lumber Co., St. Louis, has been asked to arrange for a hall in which to meet. He writes us that he would appreciate it if those who expect to attend would send him a postal card so that he may arrange for proper hotel accommodations at reduced rates. Mr. Holekamp is an enthusiastic beekeeper and a live wire at conventions. The members of the National, and all others who expect to attend this convention, will do well to get in touch with him immediately. Unfortunately for us the date of this meeting comes when E. R. R. will be in Florida; and this necessarily means that his assistant, H. H. Root, will be doing double duty at Medina. We shall try to have a representative present, and probably arrange for a demonstration of a power-driven extractor with a complete modern extracting equipment, just such as is now used by large producers. This will be given in a separate room or building, apart from the regular convention hall.

We understand that the management is laying plans to make this a big meeting, and a great social meet as well.

MOVING BEES TO THE SOUTHLAND FOR INCREASE; LOOK BEFORE YOU LEAP.

Apparently our experiment of shipping a carload of bees to Florida to make an increase of 100 or 200 per cent is attracting a good deal of attention if we may judge from the correspondence that has been coming in. We desire to say to one and all, do not think of moving a carload of bees south till you have spent a month or so in or near the point where you propose locating. There are three things you should know. (1) It is very important to find a spot that will not overlap on some one else. (2) Make sure that the point is one that will support bees. (3) Learn the locality before moving.

The only way one can make it practicable to take a carload of bees south is to arrange with some beekeeper already in the vicinity to find you a location that will be advantageous to you and not interfere with the other fellow. A better plan is to go a month ahead and look the situation over. There is plenty of unoccupied territory in the South, providing one will take the pains to find where it is. No beekeeper in the North or elsewhere can afford to go into a locality already overstocked. He will be interfering with his own interests, and at the same time cut down the yield of the local residents, and at the same time incur their ill will. This country is so large that there is room enough for all; but there is not room enough for a man to put his bees in a location close to another.

It sometimes happens that one can buy out the location of another beekeeper. This is precisely what we did with Mr. A. B. Marchant. He had a location apart from every one else which he was willing to sell. This was secured, and that is where our bees are now placed.

An experienced beekeeper from the North would be working to a great disadvantage if he does not know the bee flora of the new bee country. This is the reason he should spend some time in the proposed location in advance and before he moves the bees. Beekeeping in the South is not the same as beekeeping in the North. Any one who attempts to move a car of bees South without the proper knowledge of the new conditions will fully comprehend when it is too late that " Experience is a good school, but the tuition is high."

THE NEW METHOD OF INTRODUCING WITH SMOKE; REQUEENING WITHOUT DEQUEENING.

We call attention to the suggestive article by Mr. A. C. Miller, p. 50 of this issue, entitled "The Economics of Requeening." Our correspondent figures that the direct loss of queens introduced by the cage plan is about 40 per cent. This may be true, perhaps, when we consider queens sent through the mails and introduced by persons of little or no experience; but our loss does not exceed 10 per cent, and is usually less. The loss by the average beekeeper is greater, perhaps, because he is over-solicitous in that he keeps opening the hive and peeping into it to see how the new queen is coming on. If he paid three or four dollars for her, and he is a beginner with only two colonies, he will open the hive every few hours, and perhaps he will try to hasten the operation. Such a procedure only makes the matter worse. Our best results from introducing by the cage plan have invariably been secured by leaving the colony severely alone, allowing several days to elapse *after* the queen is supposed to have emerged from her cage. Repeatedly have we seen queens balled that had been out of the hive only a few hours. Naturally enough, she is shy, and the act of opening the new hive frightens her the more. If she starts to run, or skulks, and especially if she pipes or squeals, she invites attack, with the result that she is promptly balled. Years ago, when we were rearing queens, and introducing, we found so many cases of balling immediately after opening the hive that we concluded it was a bad practice. Now, then, to return:

If Mr. Miller figures in the class of beginners who will tinker with their bees too much while the process of introducing is going on, the loss may be as great as 40 per cent; but we do not believe that, with the experienced beekeeper, it will be over 10 per cent. We remember one large producer ordered 100 queens. He wrote back and ordered ten more queens after he had introduced the hundred, saying he had bad luck. He had lost ten queens by the cage plan, and he wanted ten more. He intimated that some of the queens might have been old virgins, and if that were true it would account for his failure.

AN IMPORTANT CASE OF HONEY ADULTERATION WON BY THE GOVERNMENT.

When the new pure-food law went into effect, and later the pure-food laws in the various States, the adulterations of honey, particularly with glucose, were stopped or almost entirely so. Prior to that time a large part of the bottled honey on the market put out by the packing-houses was adulterated with glucose, and there was no way to stop it. In the mean time the honest beekeeper had to compete with this cheap twangy stuff; and as the grocer could buy the glucose mixtures for less money, the beekeeper was given a poor show. But since the enactment of the national pure-food law (thanks to Dr. Wiley) glucose adulteration has, to a great extent, ceased. To some extent cane-sugar syrup has been used as an adulterant, but to only a very limited extent, because glucose was so much cheaper. As it was comparatively easy to detect the addition of cane sugar or glucose—especially the latter—the honey adulterators were compelled to quit using them or get into trouble with Uncle Sam.

But later on there came a species of adulteration that was very difficult to detect. A process had been discovered for making what is called "invert sugar." Although an artificial product, this came very near answering the chemical tests for a pure honey. The adulterators then saw their opportunity to put invert sugar into honey and sell the combination for much less than any pure honey could be sold for. They felt safe from detection because they believed no chemist would positively be able to show up the fraud. But it was not long before the Government chemists were able to do so, and the adulterators were stopped. Shortly after, however, the chemists of the manufacturers discovered another process for making a new invert sugar that they felt sure would defy the best pure-food chemists of the country, and for a time the Government men were up against a hard proposition. But the Bureau of Chemistry, Washington, D. C., kept busy, and finally discovered several methods by which even this new invert sugar could be detected when mixed with honey.

A recent test case before the United States court held in Philadelphia was tried and won by the Government. This is one of the most important cases ever held; and the fact that the Government is now able to detect any form of invert sugar when mixed with honey or any other kind of sweet is going to mean much to the beekeeping interests, not only in the United States but to the whole world, for Uncle Sam will see to it that all the chemists are properly informed as to the methods he used in detecting invert-sugar adulteration in honey.

So important and far reaching was this case that we asked our chemist, Mr. Selser, who was not only present but a witness at the trial, to prepare a technical statement showing the methods that were used by the Government to prove the presence of invert sugar in the honey that was seized. Before doing so he shows the difference between the two invert sugars.

Furfural was so pronounced in the conversion of the dextrose of cane and beet sugar into the first invert sugar or levulose and dextrose that Browne & Fehles' chemical tests soon exposed the fraud. The food adulterators soon discovered their mistake. They then, by using a small per cent of tartaric or other acids, and heating at a low temperature, accomplished the inversion without producing any furfural. They now felt they had an invert sugar that the pure-food chemist could not detect from the natural article, honey. They became very bold through the assurance of their chemists.

About January, 1912, a large syrup and honey company of New York, doing a business of a quarter of a million a year in mixing honey, etc., sold and shipped to a Philadelphia dealer in pure honey six cases of what he bought as pure honey, and labeled "Choice Pure Strained Honey." The government officers, waiting for the opportunity, at once seized the shipment as misbranded and adulterated. This New York firm, evidently, were so sure their adulteration of honey with invert sugar could not be detected that they employed the highest-priced and best corporation lawyers doing a large business in the United States Supreme Court, along with the best expert chemists they could find. The Government, finding that the defendant would not submit to the fine and penalty, and realizing that it would be a test case of chemist against chemist, had its two United States District Attorneys in Philadelphia and its chief Prosecuting Attorney from Washington prepare the case for trial. The Government called only expert chemists, its own Chief Chemist with his three assistants from the Sugar Laboratory at Washington, making all its pure-food analyses; its Chief Chemist in the Philadelphia laboratory, and the best Government expert on honey analysis in the United States, brought from Seattle, Wash., and one expert from civil life, who has spent about a quarter of a century on the analysis and natural composition of pure honeys. There were thus arrayed legal and chemical experts against legal and chemical experts, resulting in the cost to each side of many thousands of dollars, from which the beekeeper will get a lasting benefit.

Every legal obstacle was thrown in the way, and many of the expert chemical opinions challenged by the defense, with a counter chemical expert's opinion, and, as a result, the trial which might have been concluded in a single day lasted for about ten days.

For those who may be interested in the chemical side of the case, and others who might feel there is yet a chance of safety in mixing their honey with this new invert sugar made with tartaric acid, we give a brief outline of the chemical lines upon which the case was fought and won.

The first and most important fact brought out in the testimony was the difference between *natural* invert sugar (honey) and *artificial* invert sugar made by the use of tartaric acid. Judge Holland was especially interested in the line of testimony on this point, questioning the witness again and again. The Government chemists showed that all natural honeys contain soluble salts and basic acids. They had a table of the honeys of the world gathered in Washington, showing the variance of these salts and acids in the honey of all varieties. The defense claimed their honey was 80 per cent Cuban and 20 per cent buckwheat; but the government showed that there could not have been over 40 per cent of these honeys in the sample, since the sample was just in that proportion deficient in these soluble salts and basic acids. This point was contested by the defendant on the ground that some mineral salts had been extracted with the dirt when it was heated and strained, and that this heating and straining would account for the deficiency. The Government admitted that, while some mineral salts could be extracted with the dirt, yet the salts that the Government chemists showed deficient was in *solution*, and, if present, could not have been eliminated by heating, straining, or filtering.

The Government further showed that the inversion in the honey-sac of the honeybee is never quite complete in the case of sweets gathered by the bees from sugar-cane, corn-blossom, honey-dew, or sugar syrup fed to the bees, for the very reason that soluble salts were never present in any of them. This explains why sweets gathered by bees, from the above sources, fail to make a honey that will meet the requirements of the Government standard; but all nectar gathered by the bees, and stored from *pollenized plants or flowers*, has soluble salts in their composition.

Again, the protein test was another strong point in favor of the Government, and an important factor in winning the case.

The Government chemists, in determining the nitrogenous material, by both the ordinary and the Kilderhahl methods, found .14 per cent of protein in a sample seized, where the records show that a normal Cuban honey, of which the defendant claimed the sample was 80 per cent Cuban, had .5 per cent, or ½ of one per cent, while the German government specialists' literature state that .2 per cent is the lowest known protein in any pure honey.

The polariscope test was another hotly contested one. The direct and invert reading at a temperature of 20 Cen. and at 87 Cen., figured on a dry basis, showed the resultant actual difference in the two temperatures to be 23.2. Literature on the subject shows a range of 23 to 33, with an average of 27, clearly showing it to be away below the average, or just what 40 per cent with 60 per cent of invert sugar would allow.

Again, in the tartaric-acid test there was found .08 per cent of tartaric acid in sample, while natural honeys contain only a scanty trace, and in Cuban and buckwheat honeys no tartaric acid is found.

Finally, in the pollen-grain test of the microscope, while it was admitted to be inconclusive, the result corresponded with the small per cent of honey in the sample seized.

We here give part of Judge Holland's charge to the jury, for it is significant:

Gentlemen of the Jury:—Every man, woman, and child in the United States, when he is hungry, needs food; and when he is sick he needs drugs; and the individual citizen is unable to see to it that the food purchased or the drugs purchased are pure, and the Government has taken on itself the work of perfecting that for the whole people, so that this is a contest for pure food for the protection of the individual citizen who has not the facilities or the information to protect himself. It is a very, very beneficial act; but it has no terror for the man (or, rather, the manufacturer) who sells the pure article and brands it what it is. It is a fact, notwithstanding the attempt which did throw a great deal of doubt and uncertainty over the work of the experts in this case, that chemistry has been wrought to such a high point of efficiency that it can be told with certainty, or at any rate with a certain degree of certainty, what is contained in almost any substance, whether or not it is pure, or whether or not it has some other substance mixed with it.

You will notice that an article is adulterated if any substance has been substituted, whole or in part. There is no question as to whether the adulteration be deleterious or injurious to the health. The substitution may be beneficial; but the law is to guarantee each citizen that, as a consumer, he shall know. when he desires to purchase a certain article, what he gets and what he pays for. That is the object of the law. It is to protect the consumers against the adulteration or misbranding of their goods and their drugs so that they may be able to rely on what an article is said to contain, and may rely so that they will not be misled by the label.

The Government, in its supervision of matters of this kind, concluded that this particular brand of honey, which is labeled "Excelsior Choice Pure Strained Honey," is not a pure honey, and it seized these six cases, and it now brings this proceeding, charging that it is impure or adulterated in one of its labels, and in the other that it is misbranded. Their label on it, "Choice Pure Strained Honey," is not true, as it contains other matters besides pure honey, and, therefore, it is misbranded. Their expert proved what is alleged.

Now, we are entirely dependent upon the testimony of experts with the sole exception of the defendant himself. The Government experts gave authority, and testified and gave an account of the analysis they made for the purpose of ascertaining what this mixture contained. They stated positively that they made his examination and they gave the result. They started with what they regarded as the most significant analysis, which is the one which produces the ash result, and they went through an entire list of known methods in chemistry by which they can ascertain whether the honey is pure or adulterated. They took Browne & Fehles' tests, and produced part dextrose and levulose, and the polarization in finding tartaric. There were nine tests in all.

As evidence on the side of the Government, you will recall with what intelligence Government experts maintained their position as to the work they had done; and you will judge, of course, of the method in which it was done, and judge whether or not you will accept their conclusion or the conclusion reached by the expert of the defendant.

The jury retired at the close of Judge Holland's charge, and, after deliberating about 50 minutes, brought on a verdict of guilty on both charges of adulterating and misbranding.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

J. E. HAND, thanks for sounding a needed warning note as to feeding sugar, p. 858. Besides the reasons you give against it, there is, I think, another. In honey there are elements not found in sugar (iron, etc.), and these may be of great importance to the health of bees, even though small in quantity.

REPLYING to Thos. P. Bowles, I would say that it is as well to have the same number of sections ready in advance when prospects are poor as when they are good. After a severe drouth, all clover apparently killed, I've had quite a crop; although little or nothing may be expected next year from plants starting from seed next spring. But honey may come from unexpected sources. At any rate, foundation in sections will keep all right till the first good year that comes.

ROBERT HUDSON asks if Caucasians look like hybrids. They look more like blacks—so much so that sometimes an expert may be fooled. There are, however, yellow Caucasians that look more like Italians. [Caucasians look so much like blacks that we do not believe that even experts can tell the difference. Sometimes it is very difficult to distinguish the difference between Carniolans and blacks, although the former have more of a bluish-black appearance than a grayish black.—ED.]

John Phin, recognized authority on agriculture, died of pneumonia at St. Joseph's Hospital in Paterson, N. J. He was 85 years old. It was as a microscopist that he became prominent after retirement from teaching twenty years ago. He wrote more than 200 books on scientific and other subjects.—*Chicago Daily*, Jan. 1, 1914.

ANOTHER good friend gone. He kept abreast of the times in matters apicultural to the last, and not long ago wrote me that he still kept one colony of bees. [We also have been having some delightful correspondence with Mr. John Phin. We first made his acquaintance when we were studying the microscope nearly 40 years ago. We read with delight his book on the subject, and his journal on microscopy, published at the time. We had lost track of him until a recent letter showed that he still maintained his interest in bees. Perhaps some of our older readers will remember that some years ago he got out a dictionary of beekeeping terms.—ED.]

"MR. PRITCHARD believes that hard candy is the best material to feed in an emergency during cold weather," p. 29. No doubt that's right; and with emphasis on the "emergency," the emergency being when good honey can not be obtained; for I don't believe that sugar candy is ever as good for man or bee as the best honey. [That depends. We have put some colonies on dry combs, and all they have is dry candy. The candy is the thing that induces brood-rearing, and perhaps you would not use it for that reason. What we are after is a large force of bees early in the spring. Sealed honey or sealed stores of any kind do not invite brood-rearing. Indeed, it is our opinion that colonies will go into a state of hibernation on sealed stores more readily than on any other kind of feed that can be given.—ED.]

I DON'T know that I've ever taken much part in the controversy about bees moving eggs, but it never seemed reasonable to me that bees would do such a thing. To be sure, eggs have been reported where no queen could reach; but there was no accompanying affidavit that no laying worker was in the hive. Queen-cells were also found in such places, but I don't remember that any one ever reported that a good queen came from such cells. If the thing had been followed up I should have expected a dead drone to have been found in the cell.

But, June 6, No. 49 swarmed. The queen was caged, and the cage stuck in the entrance. Ten days later, when cells were killed and the queen freed, on one of the combs was found a spot perhaps two inches square rather compactly filled with young brood and eggs. Somewhat curiously, precisely the same thing occurred with No. 14, and with the same dates, only in No. 14 three queen-cells were started with very young larvæ. Here was my chance to see what would come from the brood in that comb, and especially from those queen-cells. I put the comb in an upper story over an excluder, and some time after the cells were sealed I tore one of them open. The inmate didn't look like a drone. I put the other two in a nursery, and in due time put the resulting queens—for any thing I could see they looked like any other queens—into nuclei, and when they were laying they were introduced into Nos. 6 and 27, and, so far as I know, they are doing duty as faithful sovereigns in those two colonies to-day. Now, will some obliging friend with a better stock of argument than I possess please come to my aid and help to explain how all this happened without admitting that the bees carried eggs dropped by the queen while in the cage?

SIFTINGS

J. E. CRANE, Middlebury, Vt.

I hope the shipping of bees to Florida by the Root Co. may prove a grand success. We are all interested.

* * *

The most interesting page in GLEANINGS for Nov. 1 is the last one devoted to temperance rather than bees. Oh, my! how it does quicken the pulse to read the good news!

* * *

That illustrated article by Prof. Gates, on pages 755 to 759, Nov. 1, is well worth the careful study of beekeepers desiring to make exhibits. Those Connecticut beekeepers are ahead of all the other New England States on honey exhibits, sure.

* * *

Does beekeeping pay? When I read in the A B C some time ago that our friend Dr. Miller had sold from his colonies devoted to the production of section honey an average of $39.97, I said, "It certainly does —sometimes."

* * *

I have been making beeswax the past week; and from about 480 combs in Langstroth frames I made some 160 lbs. of wax, or 3 1-3 lbs. for each ten frames. I find the secret of success is a good wax-press, plenty of boiling water, and patience.

* * *

What Mr. Porter says, page 819, Nov. 15, about home-made hives and fixtures is well worth careful reading and meditation by all beginners. The shabby hives that many beginners use is enough to try the patience of Job, and do more to discourage prospective beekeepers than almost any thing else.

* * *

The article by Prof. Lovell, page 687, Oct. 1, ought forever to settle the question of the likes and dislikes of bees for certain colors. The reason he gives for bees trying to sting dark objects before white is because they see the dark object more readily—a fact that beekeepers will do well to remember.

* * *

I thought, Mr. Byer, that you lived away up north, almost under the shadow of the north pole, and here you are complaining on page 751, Nov. 1, that you were suffering from torrid heat Oct. 10. The weather was just fine away down here in Vermont at that time—just right to start the clover for next year.

* * *

Dr. Miller makes a good point, p. 740, Nov. 1, when he says it costs 39 per cent more per square foot to rear drones than workers. If we add to this the fact that drones are large consumers from the day they hatch till they die, while workers make themselves useful from the day they hatch, we see the folly of leaving large blocks of drone comb in our hives.

* * *

On pages 682, 683, Oct. 1, are some illustrations of winter cases that remind me of one I made a year ago to house twelve colonies. It was 8½ feet long by 4½ feet wide. Three colonies were placed in it to face each side four inches from the wall, and about two inches apart. The space between the walls and hives was packed with planer shavings and some between the hives, and ten or twelve inches of shavings above the bees. They wintered perfectly.

* * *

PIECES OF COMB VS. FOUNDATION.

It makes one feel good to read how Mr. J. E. Hand is able to fill his sections with drawn comb, pages 805—807, Nov. 15. It looks as though it would work, too, where one has only a single yard to look after. But when I have six or eight yards to look after it makes my back ache to think of it. One might get drawn combs one year, and fit them into sections during the winter; but then they would be old combs and not look as nice as new, nor work as nicely either. I might say in this connection that I cut down all my partly filled sections to about one inch thick so the bees will build out with new wax the face of the comb from ¼ to ⅜ of an inch, which greatly improves the appearance. I do not seem to have much trouble in getting bees to commence in sections if honey is plentiful in the fields.

MELTED WAX BRUSHED ON TO FOUNDATION TO PREVENT SAGGING.

Mrs. G. N. Wisgate asks, page 620, whether there can not be some way devised easier than wiring frames to prevent sagging of combs. Dr. Miller, page 749, suggests the use of splints, and I should like to inquire as to the experience of those who have coated the upper part of the sheet of foundation with melted wax applied with a brush. It can be applied more quickly than frames can be wired and wires imbedded; and as I saw it practiced by Mr. Poppleton in Florida it appeared to be a success. I placed strong swarms on such foundation sheets without their sagging in the least so far as I could see; but there was little honey coming in at the time. The extra wax is utilized in drawing out the foundation into comb.

Beekeeping in the Southwest

Louis Scholl, New Braunfels, Texas.

ROSELLE JELLY, AND ADVERTISING IT.

It has not been very long since our senior editor had much to say about "roselle" and its culture. Not until recently, however, have I seen this plant grown to any extent, and the fruit made into delicious jellies and placed on the market. At one place I saw some four acres of roselle maturing its red, acid-flavored fruits in remarkable abundance. The plants averaged about six feet in height, spreading over the ground about five feet, and even more where they grew near irrigation ditches.

The product put out is a superior pure-food article, very clear and beautiful, red in color, and put up in glass jars nicely labeled, making an attractive package.

I noticed it in nearly all of the general stores. At some of the hotels several of these jars were left, one at a time being opened, and left with a spoon in it to be tasted by the patrons. This seemed unique to me, and may be applied in advertising honey to advantage perhaps.

* * *

HEAVY LOSSES THROUGH FLOODS IN TEXAS.

The year 1913 will go down in Texas history as one having a most excessive rainfall and some of the most severe floods ever witnessed in this State. The damage done will run into many millions of dollars, besides the loss of over 150 lives.

Among the first lives lost was the wife and four children of our friend Polk, a prosperous beekeeper at Belton, Texas. When Mr. Polk learned that there was danger of high water near some of his bees he proceeded there, with his oldest son, for the purpose of bringing them to higher ground. The flood came on so rapidly, however, that he was soon cut off from his own home and family, all of whom were lost, leaving him only the one boy who had gone with him. The bees he tried to save were also lost, since the flood reached unexpected proportions. Our sympathy is with this bereaved beekeeper in the loss he has sustained.

OUR OWN LOSSES ALSO HEAVY.

The Brazos River flood, the highest in history, made toys of seven of our eleven apiaries located on the large plantations of this rich river valley. Although the hives were located on high, heavily constructed scaffolds, out of danger of any previous floods, the water, which was 14 feet at most of the locations, swept away every thing.

Our new two-story ironclad honey-house, workshop, and warehouse, 28 by 36 ft., our manager's residence, a neat city-style home, barn, and all other out-houses, went along also, together with several carloads of supplies, all of our equipment, including wagons and buggies. The two horses, a valuable cow, hogs, and poultry were all drowned, and the entire place left in ruin.

Our manager of apiaries, Mr. H. L. Russell, who has been a most faithful assistant for nearly four years, was with me at New Braunfels, for a few days, making plans for the next year, when the news of the high water came. He started back immediately, requiring almost a week to make the journey, walking the biggest part of the way through flood-swept territory. He had left his family and other relatives at home; and the reader can imagine the frenzied anxiety that possessed him. He had learned that every thing was washed away; but he could not ascertain in any manner the whereabouts of his loved ones from whom he was separated. After reaching there he was only able to find that they had escaped by means of boats they constructed after the water came, and were safe somewhere in an adjoining county. All communication being cut off, it was impossible to locate them, however; and although two weeks have elapsed, he is still separated from his family, and neither do they know his whereabouts.

I am writing this on my way to the stricken district and to these good people who have suffered so much. Although our loss is from $10,000 to $12,000, I have given it little thought, because, uppermost in my mind, has been the welfare of these faithful persons; and while I am making slow headway from one halting-place to the next, over the miles and miles of ruined tracks, just replaced to let the first trains pass after more than two weeks of suspended traffic, my anxiety to reach our now ruined former fields of operations is the greater. Although we have lost heavily, Mr. Russell has lost all of his belongings in this terrible flood except the clothes worn by him. But we know that the faithful will receive their reward; and this happy thought is exemplified by the fact in this case that a number of good friends who remembered the Russell family from a few months' residence in my employ at New Braunfels, before Mr. Russell was placed in charge of the apiaries in the Brazos River Valley, have placed in my care a large trunkful of warm clothes that I am to deliver to them upon reaching my destination.

Beekeeping in California

P. C. Chadwick, Redlands, Cal.

DOES HONEY FROM THE SAME PLANT VARY?

It seems that I am almost alone in my views on the color of honey from the same plant. That part does not bother me as much as do some of the arguments used to prove that I am wrong. Some are not only claiming a difference in the color of honey from the same plant, but have gone further by saying there is also a difference in the body and flavor. No doubt this will be of great advantage to those who have an inferior grade of honey, for they can choose a fancy name and thereby augment the sales of their crop; but it is hardly necessary to state that the true article from which they have borrowed the name must in time suffer. But, according to the trend of the discussion at the present time, they will have quite an array of argument to sustain them. In that case the name white clover, basswood, buckwheat, sage, orange, etc., will mean absolutely nothing. We have a prominent beekeeper in California who was also long a producer in New York, who says that he has seen the early flow from cultivated buckwheat so light that it could not be told from white clover by sight. He also contends for the difference in color of sage, according to the soil and elevation.

I wish to review briefly Mr. Wesley Foster's argument on p. 838, Dec. 1. I agree that plants are constantly undergoing a change; but I contend that it is not an overnight change. Mr. Foster has the following to say: " The various honeys such as alfalfa, orange, white clover, and basswood, however, *approximate* a certain definite standard." Yet in the Imperial Valley of California we are told that alfalfa runs as low in color as dark amber. Buckwheat in New York as light as white clover, and white clover in New York as dark as buckwheat! Where are we at? Mr. Foster also says. " It is an accepted fact that the climate has an effect on the color of people's skins, hair, eyes, etc. People on the Pacific coast have a different complexion from those in the Rocky Mountain region." Yet in Germany we find light-haired blue-eyed people, while just across the line in France we find them dark-haired and black-eyed. So far as the complexion of people here on the coast being any different from those of the Rocky Mountains is concerned, that is a fallacy.

I had many talks on this color proposition while at the California State convention, for I was the target that several people wanted to shoot at. Nine out of ten agreed that, the heavier the flow from a source, the lighter the honey. That was my original contention, that we obtain only the *pure* nectar from any flower when it is yielding bountifully; at other times it can not be judged as pure, from the fact that other plants are yielding enough to change the color. Take the button sage, for example. No amount of preaching can make me believe that it is not water-white in its purity, for I have studied this flora for ten years under all conditions; yet there are some years when we get the pure water-white grade, though most of the nectar is from that source. The button sage, under the influence of warm sunny weather, will yield a perfect stream of nectar, so to speak, while a dark, cloudy, cool day will cause the wild alfalfa to yield more and the sage less; then the bees go to the wild alfalfa, and within the period of a few days will often color an extracting of sage honey until it reaches the light-amber class. Strictly speaking, it is not sage honey, yet it contains only sufficient wild alfalfa to throw it off color for a strictly sage product.

A gentleman from Nevada told me that I was mistaken on the color of alfalfa honey —that it varies from white to light amber, the white being secured when there is a heavy flow on, and becoming darker as the flow becomes lighter. I asked him if he was sure his bees were getting *only* alfalfa in the light flow. He admitted that he was not.

In a recent issue of the *Western Honeybee,* " Honey-plants of California " was quoted at some length to break down my arguments; one of the quotations given there I am quoting here: " Page 1017. Mint family. *Marrubium vulgare* L; horehound. Common weeds of old fields and waste places about farms and villages everywhere in the Coast Ranges, Sacramento, and the San Joaquin valleys and Southern California. Evergreen with us; season May to September. A splendid yielder of dark-amber honey too strong and dark for table use, but is used largely in medicine. The honey is reported by some Ventura County beekeepers to be of a *light color with a greenish tinge* " (my italics). " It is, however, *probably wild-alfalfa honey* with a slight addition of horehound, as the latter is very aromatic." The facts in the matter are what we are after and what we should have. We should also know if all honeys vary according to soil and climate, and to what extent; for if it can be proven that sage honey is at times a light amber I must apologize to a firm of western buyers who quoted light-amber sage.

Conversations with Doolittle

At Borodino, New York.

SOME QUESTIONS ANSWERED.

"What is your experience with raw or boiled linseed oil for coating hives? Would it not be better than paint? Don't your hives get water-soaked without paint or oil?"

Answer.—I have never used clear linseed oil on wood surfaces, but I do not see why it should be better than paint. To paint hives properly, or any thing else, the first coat should always be mainly oil and a very little white lead, or whatever is used to thicken the oil. Thin oil penetrates the wood instead of being absorbed by the pigment used; and when it hardens, it largely prevents moisture passing through the pores. Some seem to think that the propolis which the bees use on the inside of the hive has the same effect as does oil or paint; but this is a mistake, as the thin coating of propolis-varnish which the bees use in all places (excepting on rough surfaces) contracts, checks, or cracks to such a degree when cold weather comes on in the fall, or during cold nights, that it becomes sufficiently porous.

"If shade-boards such as I recommend are used, the sun does not shine on any part of the hive during the hottest part of the day. And any shade-board which will properly shield the hive from the sun will shield it from all storms as well, unless such storms are accompanied by extreme winds; and then the water will only be driven against the bottom part of the hives.

INDUCING LATE BROOD-REARING.

"My bees did not continue to rear brood as late the past fall as they generally do; consequently they went into winter quarters depleted in numbers, and I fear for the results next season. Is it possible to force bees to continue brood-rearing during the fall by feeding such colonies as are not inclined to do so?"

Answer.—It is quite generally supposed that late feeding will induce late breeding, and so it will; but when the laying of the queen has dwindled away the last of August or fore part of September, it takes time to get her started again. Even a natural flow of nectar from the fields, if of short duration, fails to produce brood-rearing after the queen has once stopped laying. Brood-rearing is never carried on during September or October, in this locality, to an extent equal to what it is in May and June, no matter how long feeding is continued, or how good the yield of nectar from the fields may be. And especially is this the case where the laying of the queen has once ceased, preparatory to the bees entering upon a state of rest for the winter. But continued feeding will start up brood-rearing after a week or ten days have elapsed; and when once started again it will generally be kept up as long as the bees can comfortably take the food without becoming chilled. If we desire brood-rearing to continue into cold weather, it can be kept up well toward winter by feeding regularly each day, and in all cold snaps giving the feed as warm as can be borne by the hand. But after having colonies come out well the next spring, where no eggs were laid by the queen after August 10 to 20, I do not now worry about this matter of late brood-rearing as formerly. Very late breeding often results in prematurely wearing out the vitality of such bees as are of the right age to stand the rigors of winter the most successfully, and in such cases late brood-rearing is a detriment rather than a remedy.

PUTTING FOUNDATION IN BROOD-FRAMES

"I wish to fill my frames for the brood-chamber of the hives with foundation this winter; but when nailing them up I did not know that it was necessary to have a saw-kerf cut in the under side of the top-bar in order to hold the foundation. What would you do in such a case?"

Answer.—In all the frames I have made during my 40 odd years of beekeeping life I have never used a saw-kerf in one of them, nor do I consider it necessary. Proceed as follows: Upon a board slightly larger than the frame fasten another board, just large enough to slip into the frame easily, and scant half as thick as the top-bar is wide. Put the frame over this "form," then lay on the foundation with its straight edge or side close against the under side of the top-bar. It is well to have a handle of some kind on the under side of the first-named board, when, by holding the whole firmly in the left hand, you can pour from a tablespoon into the angle between the top-bar and the foundation a teaspoonful, or such a matter, of melted wax; and by holding the form in such a way that the melted material will run quickly from one end of the foundation to the other, the same can be fastened in the frame as securely and as perfectly as by any other process. When I first used this plan I turned the frame over and fastened the other side in the same way. But years of fastening only one side has proven that this is not necessary. Keep a vessel of the wax warm over a lamp or in some other convenient way. I use this method even when the frames are well wired.

General Correspondence

THE ECONOMICS OF THE NEW METHODS OF REQUEENING

BY ARTHUR C. MILLER

The editor's kind remarks appended to my article on "Requeening without Dequeening," p. 851, Dec. 1, are encouraging and at the same time suggestive. They suggested to me the fact that the economic importance of this new method as well as that of direct introduction by the smoke plan is being overlooked. Furthermore, the economics of honey production are being sadly neglected. To be sure, a stray item now and then alludes to cost of some process or suggests some saving, but they mostly have to do with the price of supplies, not with the labor, the operative cost.

From the best figures I have been able to obtain, the direct loss of queens put in by the cage plan is about forty per cent, to say nothing of the subsequent loss of maimed and injured queens which occurs later. But not a word is said as to the loss in labor in the several inspections of the colony, nor is more than a passing remark given to the loss from having the colony queenless for three to six or often more days. Then there are those colonies which persistently refuse to accept a queen, sometimes dwindling until they are of no value save to unite with some other colony. By the smoke method of introduction such loss is cut out, nearly one hundred per cent of the queens being accepted, and that immediately on the removal of the old queen. So certain are the results that it is unnecessary to inspect the colony afterward to see if the queen is safe. The aggregate saving throughout the country in cost of queens alone is immense; and if the labor item could be figured it would astound us.

By "Requeening Without Dequeening" we save the labor (costly time) of finding the old queen. If we raise our own queens and raise as many of them as we had to when introducing by the cage method, we can save almost all of that time and thus be far ahead of the cage plan. All that is necessary is to run in the new queen at the proper time, and the next morning look for a dead queen in front of the hive. Occasionally it is the second day before she is thrown out, and now and then longer; but even so, it takes very little time to walk along before the hives and look for a dead queen. They are readily seen, usually having a few workers "nosing" them over. If a system of clipping queens reared one year one way, say (for example) the left wings, and those of the next year having the right wings clipped, there is never any question as to which queen is thrown out. The veteran can readily distinguish between an old and a young queen; but sometimes the bees have been doing a little superseding unbeknown to the beekeeper, and a young laying queen is thrown out. Clipped wings make identity positive.

I have said, "If we raise as many queens as we had to when using the cage method of introduction." By that method we lost about forty per cent outright, which meant that, out of 100 queens, only 60 are accepted; hence 40 more must be reared to take their place; and if about 40 per cent of those forty are lost twenty or twenty-five more are needed. In other words, under the cage system about twice as many queens had to be raised as were needed, and I have known beekeepers to raise over three times as many, because of the loss of virgins both in introduction and in mating. Just stop and figure the cost of that! Divide it by the number of your colonies and see how much it adds to the cost of your honey per colony and thence per pound.

The reason I said raise as many queens as when operating by the cage method is because my loss when requeening without dequeening is about the same as by the cage method. But I save the expense and annoyance of looking for the old queen and removing her, and all of the queens accepted are "sound in wind and limb," which is not the case by the cage plan.

In the article above alluded to I said (p. 851) that where the queens were supposedly equally matched the bees sometimes took a hand. So far as I have been able to find out, the bees never meddle with either queen unless one runs—and perhaps "pipes"—then balling usually follows. Either queen may do the running.

One item in running queens into colonies having a queen may be an important factor in the results, and it may not; and that is *where* she is run in, whether at one or the other side or in the middle of the entrance. Suppose she is put in at one side and the old queen is at the opposite side, and they do not meet for several days, as may occur; then the new queen has filled up with eggs, and has not the advantage over the old queen which we desire. Also, the old queen may have cut down egg-laying either from age, for a resting-spell, or preparatory to swarming, and thus have a still further advantage over the new comer. These are some of the things to which I referred when I said I had not determined some factors to my satisfaction.

A little history in connection with this latest thing in requeening will, I believe, be of interest at this time. Some twenty or more years ago Dr. C. C. Miller experimented with putting in ripe cells to cause forced supersedure and for the prevention of swarming. I am not sure that he was the first to try that, but I do know that subsequently others, including myself, tried it, and also used virgin queens. The results were far from satisfactory, though Mr. Davenport, I believe, experimented with the same thing and is understood to have had less loss than the rest of us. The use of virgins or cells I believed was economically a mistake; and for that reason, and because of the small success, I abandoned their use. and turned to the use of young laying queens. The change proved wise, and brought success.

Now comes in another bit of history of particular interest to Mr. Allen Latham and myself. For years before we became acquainted we found ourselves working out the same problems and arriving at the same solutions. As time went on we got to comparing notes; and when we failed to agree I always, and I think he generally, went over the problem again and most carefully. In other words, when he agrees with me I feel sure that I am right; and when he does not, I dig for facts to prove one or the other of us wrong. We have had many a long and interesting discussion of sundry matters pertaining to bee culture, and frequently remarked on the interesting fact of our so often tackling the same question and arriving at the same conclusion, each without the knowledge of what the other was doing. One day I asked him why he had been *following* me all these years? For an instant he sort o' gasped; then, catching the twinkle in my eye, he came back with one of his knock-out retorts. Look out for him.

Well, we have both been working on this problem of requeening without dequeening, he with cells and virgins, and I with those and (later) with laying queens. Neither of us said aught to the other of what he was up to, though he told me he was at work on something which he considered of great promise. When I decided to publish what I did I wrote to him for his opinion; and, lo and behold! we again had been working at the same problem. When I say that we agree in believing it one of the most important advances in modern bee culture, and also agree in believing that we will soon make the results as uniform and as certain as they now are in the smoke method of introducing to queenless colonies, the beekeepers may be assured that they are not chasing any will-o'-the-wisp in following it up.

And this reminds me of a phase of the subject which deeply interested both of us, namely, the requeening of colonies in trees, boxes, and box hives, where the owners for sundry reasons do not want their property disturbed, and where the cost of getting out and transferring the bees is prohibitory. The displacing of black stock under such conditions with good disease-resisting Italians means more than at first thought appears.

Providence, R. I.

BEEKEEPING IN BRITISH COLUMBIA

The Bureau Hive for the Peculiar Weather Conditions

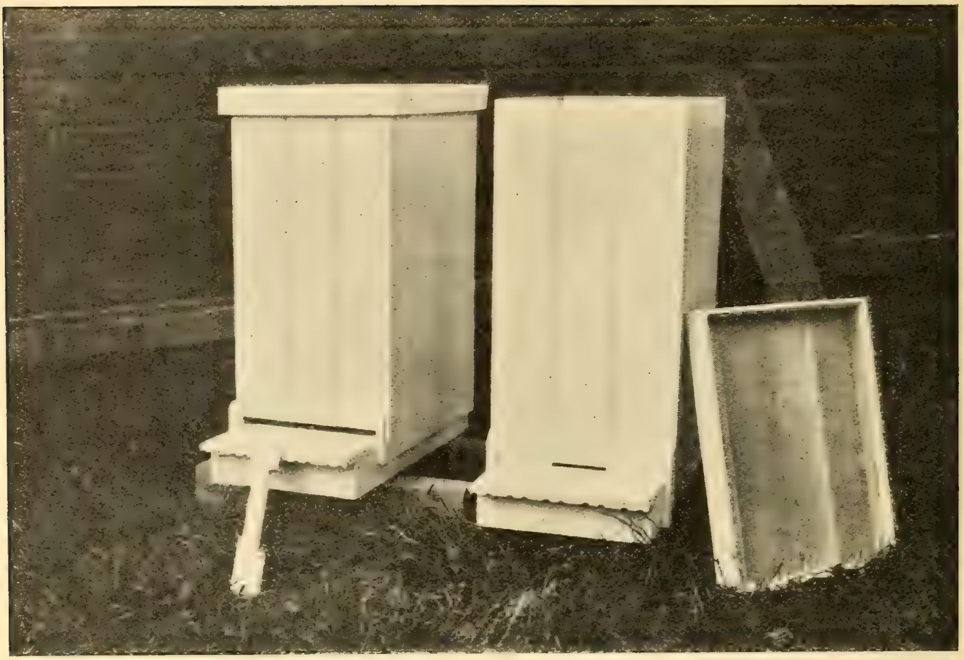
BY F. DUNDAS TODD

Unlike ancient Gaul, which, as schoolboys, we learned was divided into three parts, the big Province of British Columbia is popularly divided into two, generally known as the wet and dry belts. The section of the province under my care as a bee-inspector and instructor in apiculture lies in the wettest part of the province.

Generally speaking, beekeeping is carried on by the let-alone plan. Under my supervision are at least three thousand hives cared for in every conceivable way, and uncared for in ways that are inconceivable. Again and again I have wondered exceedingly how, with such awful lack of protection, a few hundred bees could survive a winter where the thermometer would drop to ten degrees below zero, and where often steady rainfall for days would soak every inch of comb, especially when the most favorable conditions of protection and food supply often result in the extinction of the colony. Some day I may tell my readers some of my experiences and some of the conclusions about wintering I have reached.

Our springs begin along in March, and not infrequently dawdle along in most exasperating fashion until near the end of June. Our nights are always cool, excepting for a few days in the height of summer, and even at their worst they are far from being unpleasant.

Brood-rearing begins in March. In a favorable season an eight-frame hive will be packed with brood by the end of April. At that time a second brood-chamber may be given, and by the first of June both stories will be crammed with bees and brood. I have seen both chambers of a ten-frame hive crowded with bees on April 20.



Front view of Todd's bureau hives modeled after the hive described by Samuel Simmins in a "Modern Bee Farm."

There is another side. A colony the least bit below par will dawdle along in a cold spring until about the beginning of the honey-flow, and then give up the ghost. Last spring (1913) was the worst in twenty years, and it makes my heart sore to open up, as late as the last week of May, hive after hive the whole day long only to find a few hundred bees and a poor queen which is industriously doing her task and laying as many as a dozen eggs in every cell covered by the bees.

For several years I have pondered much on the problems of temperature and damp. I have seen and handled many kinds of covers and hives, but it would appear to be almost impossible to design one that will be waterproof in the valley of the Lower Fraser. Bit by bit I have come to be of the opinion that the real solution will be found in the use of a bureau hive on the lines of the one outlined by Mr. Simmins in his "Modern Bee Farm." I dare say many readers of this journal have wished that Mr. Simmins had given specifications of the bureau; and since I have worked out the details for myself, made one with my own hands, and supervised the making of three by a first-class carpenter, I am in position to give definite data.

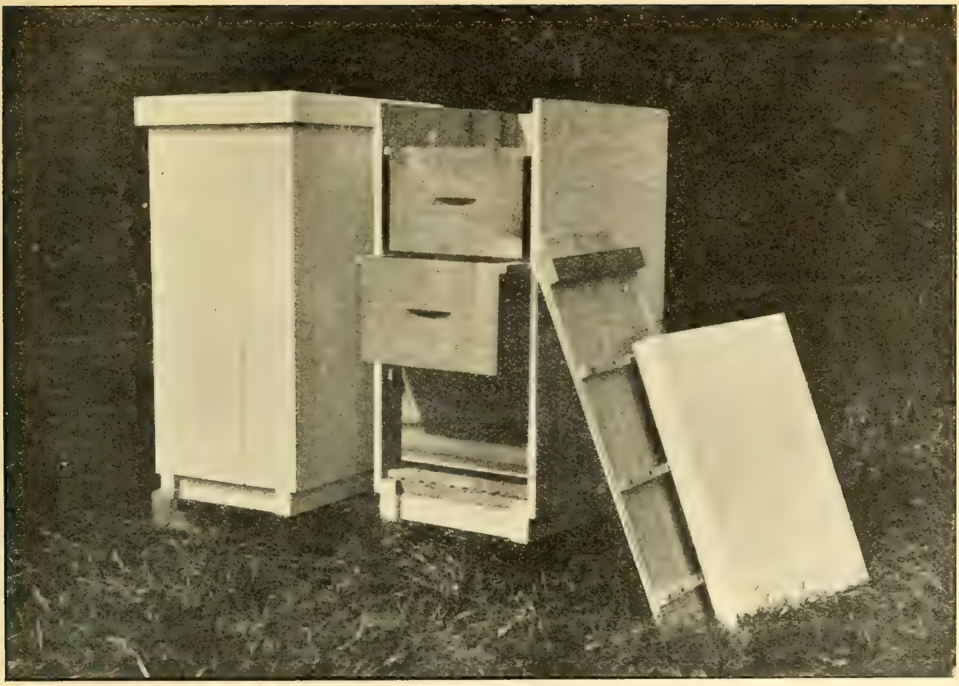
My duties keep me all summer a hundred miles and more from my own apiary, so I have been unable to make comparative tests, but I have learned a few of its merits. For instance, it will not permit bees to fly out in a warm day with snow on the ground. Such a condition occurred in my territory last winter, and many beekeepers assured me that the snow was literally black with bees. Much of the terrible spring dwindling this season was doubtless started by this cause. I have also learned that it is a good wintering hive, and one in which brood-rearing advances very rapidly in the spring.

The general idea of the bureau hive is to provide an absolutely waterproof shelter for bees, and one in which an air-space surrounds the hive-bodies and so tends to a uniform temperature in the colony. It is also a handy hive to work, as any hive body can be withdrawn for examination without disturbing the others. Furthermore, as all handling is done at the rear of the bureau, any bees that rise from the combs at once fly to the entrance, and so the beekeeper is not annoyed by their buzzing about his person.

My bureaus are made from 4-inch tongue-and-groove lumber smoothed on both sides. A little over 100 lineal feet of this wood is required for each house.

The specifications that follow are for a hive whose outside measurements are 13⅞ x 19¾. They will have to be modified a little for a different size.

Platform is 15½ x 31¼; sides are 23¾ x 35;



Back view of the hives, showing one of the back pieces removed and the middle story pulled out.

front is 15½ x 32; back is 15½ x 35; inside of cover, which is of the telescope variety, is 17 x 23¼.

Bill of goods for one bureau:

Lumber, 120 lineal feet of 4-inch tongue and groove, smooth on both sides.

¾-inch square wood, 30 lineal feet.

Screws, 5 dozen 1¾-inch steel.

Screws, 1 dozen 1¾-inch brass.

Roof, canvas or galvanized iron.

The hive-bodies are carried on runners attached to the sides of the bureau. The bee-space of ⅜ inch between sets of frames is determined by the distance between the runners, hence the hive-bodies are made of the same depth as the frames—that is, 9⅛ inches. To put it another way, when the frames are hanging in the hive-body, both upper and under surfaces are flush with the correspondinng edges of the hive.

We therefore start out by reducing the height of the hive bodies to be used to the proper size, then along the upper edge of the long sides we fasten with screws a pair of cleats ¾ x ¾ x 19¾. These cleats carry the hives on runners attached to the sides of the bureau.

The upper surface of the hive-body now under consideration will be 15⅜ inches across. Allowing ⅛ inch for play we arrive at 15½ inches as the inside width of the bureau.

As the sides of the bureau are nailed to the sides of the platform it is better to begin with the latter. The upper boards are fastened to a frame made of 1¾ x 3¾ wood set on the narrow edge. The side pieces are 32 inches long, the cross-pieces 12. In nailing the parts together the front cross-piece is set flush with the ends of the side pieces, but the back cross-piece is set in ¾ inch. This frame should be exactly 15½ inches wide.

The platform is made 15½ x 31¼. Both in front and back it is flush with the cross-pieces of the frame.

The sides of the bureau are 23¾ x 35. Once the pieces are fitted together and trued up, draw four lines across at the following distances from one end: 2 inches, 11⅜, 20⅞, 30⅜. The two-inch line marks the point of contact with the upper edge of the platform. It is advisable to nail a ¾-inch-square cleat along this line, to rest on the platform. It is especially helpful when the sides are being fitted. The other three lines mark the upper edge of the runners on which the hive-bodies are carried. These runners are ¾ x ¾ x 22¼ inches long. When in position they leave a blank space of ¾ inch at each end. The front and back will butt tight against the ends of the cleats. At this stage it is wisdom to make all fastenings with finishing nails, but for permanency screws should be used, as a heavy weight will have to be carried by these runners.

The front board is 15½ x 32. Across it draw three lines, one 9⅛, one 18⅝, one 28⅛ inches from what is to be the bottom edge of the board. These lines mark the upper edge of the ¾ cleats, cleats against which the end of the hive will strike when in position in the bureau. The top edge of the cleat will be flush with the top surface of the hive-body. To avoid mashing bees when the hive is run home it is better to have a couple of screws projecting a trifle less than ⅜ inch from the face of the cleats on the front board. It is well to nail a binding cleat of ¾-inch wood along the lower edge of the front board. All cleats are ¾ x ¾ x 15½ inches.

The back board is 15½ x 35. Across it are drawn four lines, one 2 inches from the bottom end, one 12⅛, one 21⅝, and one 31⅛ inches. The two-inch line marks the lower edge of the fastening-block, which must be strong, say 1 x 2 x 15½. The other lines correspond with those on the front board, and mark the upper edge of the cleats ¾ x ¾ x 15½.

We are now ready to assemble the body of the bureau. First, put the sides in position, the back edge flush with the ends of the projecting sides of the bottom-board, the lower cleats resting on the platform. Fasten temporarily with finishing nails. Next comes the front board. The entrance is to be exactly one inch high. To make sure of getting the height correct, place a block the proper thickness under the front board. If construction has been carefully done the cleats on the front board will rest snugly on the runner cleats on the side boards. Fasten with finishing nails. When the back is slipped into place it will be found that the projecting ends of the foundation frame will prevent its going home, so pieces to correspond with these ends must be cut out of the back board. These will be about 1¼ x 1⅝.

The lower end of the back board is held in place by iron dowels that project from the surface of the bottom-board and about 4 inches from each end. Drill fastening-block. The dowels are easily made by cutting off from a couple of four-inch wire nails pieces 2½ inches long, measuring from the point. The position of each is ½ inch from the edge of the bottom-board and about 4 inches from each end. Drill holes for them, then insert the blunt end and drive home, leaving ½ inch projecting. Replace the back board and force it down upon the points of the nails so as to mark the position of the holes. Drill these.

The cover may now be made. The telescope sides, if the cover is a tight fit, will draw all parts of the bureau tightly together; hence it is better to make the roof first, the exact size being the outside dimensions of the bureau—that is, 17¾ x 23¾ inches. The side pieces of the cover are made of ¾ x 2½-inch wood, and are best made with a miter joint. To insure easy fitting it is advisable to chamfer the inside lower edge.

To make the roof perfectly water-tight it should be covered with a zinc or galvanized iron roof, or with canvas to which are applied three coats of paint.

The entrance block is ¾ x 3 x 17. On one side is a cut-out ⅜ x 5; on the other, ¾ x 8. We thus have a choice of three different sizes of entrances. In addition, by the use of blocks of wood we can contract as much as we please.

To hold the blocks in position, put lugs on the sides of the hive, the size being ¾ x 2 x 6. Cut out a space ¾ x 3 to permit the entrance block to fit in.

By slipping the hive bodies into place, one can test the accuracy of the construction. There ought to be a ⅜-inch space between each hive-body. The front and back cleats should be flush with the top of the hive opposite. The lower hive should be even with the lower edge of the front board.

When fitting is perfect, remove all pieces and fasten all cleats and runners in place with 1⅜-inch screws, not forgetting the projecting screws on the front board cleats.

The permanent fastening of the sides and front board is best done with brass screws, as they are not liable to rust.

The above design is suitable for extracted; but by changing the position of the upper runners and cleats it can be made available for section honey.

The quilt should be 15½ x 19¾. Plenty of room is given above the uppermost hive for piling on lots of old sacking to retain the warmth. On very hot days upward ventilation is secured by turning back the rear end of the quilt and prying up the cover a little.

To preserve the woodwork of the foundation frame it is advisable to set the bureau on cross-pieces of lumber.

The three hives I had made early in June are now in the care of three beekeepers in my territory. British Columbia readers may be interested to know where they are located. One is at the experiment farm at Agassiz; one is under the care of Wilfred Smith, of Dewdney; the third is in the apiary of John Reagh, Ladner. The latter is a beekeeper of twenty years' experience who successfully manages a back-yard apiary of about 40 colonies in a very tricky locality. Wilfred Smith is a young man of twenty-one who last year took over the home apiary of thirty colonies that had been moderately neglected, and beat his dad out of his boots, much to dad's delight. The superintendent of the experiment farm is keenly interested in bees, but, unfortunately, is overwhelmed with the care of many things, and so has too often to attend to the bees at odd moments. But somehow I feel that the very variety in the conditions will be all the better for the test. All have one condition in common—cool nights and plenty of rainfall.

On July 28 Wilfred Smith reported, "For the coast district it looks as if the hive is perfection itself. It does not seem to be affected by rapid changes of temperature such as cold nights after a warm day. The bees never hang out in front, no matter how hot the weather. (This, by the way, is my own experience, so far as I have had opportunity to notice.) Brood-rearing never ceases, and is reared right up to the outside walls of the hive body. In a single-walled ten-frame hive, you know, the two outside frames generally contain no brood. In an eight the inner surface of the second frame is used for brood."

The real test will be the wintering and springing. The results I should be able to report by July.

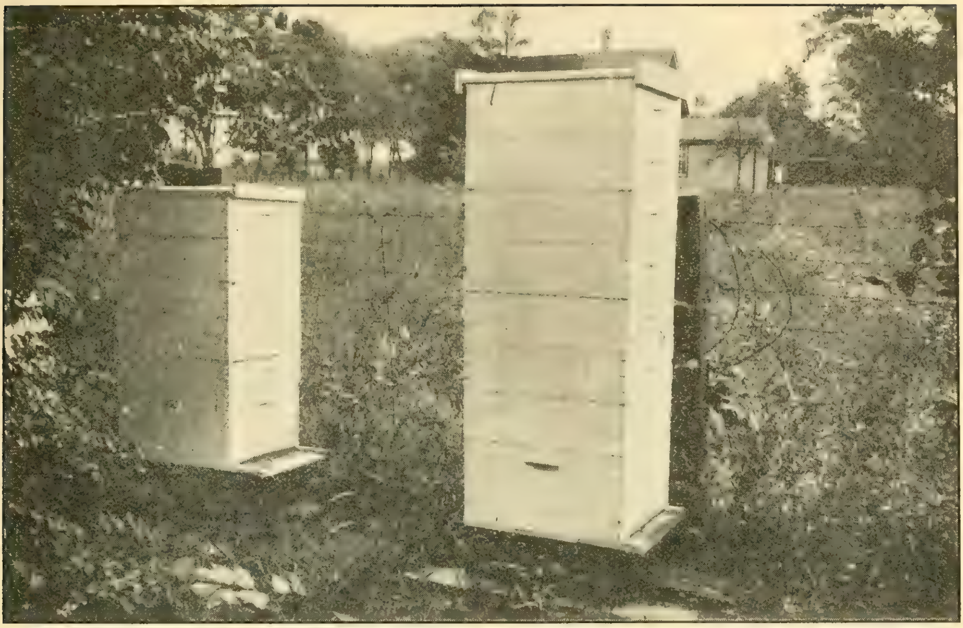
Victoria, B. C.

REPORT OF THE MICHIGAN BEE-KEEPERS' CONVENTION HELD AT DETROIT, DEC. 10, 11, 1913

BY G. A. OFFINEER

The convention was opened by a very pleasing address by President Jenner E. Morse, of Saginaw, in which he welcomed the beekeepers at the convention, and brought forward in a very prominent way the advantages of the friendly spirit which should exist between beekeepers.

He was followed by an address, "The Production and Sale of Comb Honey," by Mr. Leonard Griggs, of Flint, Mich., who spoke at length on the production of honey, both comb and extracted. He advocated the use of the double-walled hive for the wintering of bees, and also for the production of honey, both comb and extracted. He ships all of his honey by freight, packing the comb honey in the regular way and the



Colony belonging to H. F. Edsall, Hammonton, N. J., that filled in 1913 seven supers, making a total of 224 4 x 5 sections. That's going some.

extracted in 60-pound tin cans. He favored selling to the wholesaler in preference to the commission man, or direct to the retail trade. During his speech he said that he expects to buy a power extractor and to increase the number of his apiaries so that he can produce much more honey than he did this season, this season's production amounting to 35,000 lbs.

" The Relation of Beekeepers and the Fruit-grower " was presented by Mr. R. H. Pettit, of Lansing, Mich., Professor of Entomology in the Michigan Agricultural College. With the aid of lantern slides he brought before the convention the benefit to fruit-growers by having bees in their neighborhood. His talk was followed by a question-box, in which the whole convention took part in a general discussion of the topic.

The evening session was opened by an address by Mr. E. B. Tyrrell, Detroit, Secretary of the National Beekeepers' Association, on " Imagination as Applied to the Bee Business." Mr. Tyrrell mentioned the instance of the Root Company sending bees to Florida as being the result of some one's imagination being put to the test for the benefit of the beekeeping industry.

Mr. J. Pomeroy Munson, of Grand Rapids, President of the Michigan State Horticultural Society, spoke on " The Relation between the Fruit-grower and the Beekeeper," and dwelt largely on the subject of bees being poisoned by spraying, and also on the so-called danger of bees spoiling ripe fruit.

Prof. F. E. Millen, of Lansing, State Inspector of Apiaries, gave a long talk on " Foul Brood of Different Kinds, and Method of Treatment," covering the subject very thoroughly, and answering the many questions asked him. He urged the co-operation of every beekeeper, and the assistance of every person to help get control of the disease in Michigan.

Mr. A. G. Woodman, of Grand Rapids, gave an attractive demonstration of a new machine for fastening foundation in sections, which seemed to interest many members, the machine putting starters in both top and bottom, and folding the sections in one operation.

Thursday's meeting was opened with an address by Prof. Morley Pettit, Guelph, Ontario, of the Ontario Agricultural College, and also Secretary of the Ontario Beekeepers' Association. His address dwelt largely on the relation of the different associations in beekeeping, on how to procure new members, and on the bee industry or the development of the bee industry in general. His address was received with much applause, and many questions were asked.

The subject of " Wintering Bees in the Cellar " was thoroughly discussed by Mr. David Running, of Filion. He is vice-president of the Michigan Beekeepers' Association. He discussed the subject very thoroughly from the conditions in his own locality and those of his own apiary, answering many questions on the wintering proposition.

Mr. Ira B. Bartlett, of East Jordan, who was to speak on "Wintering Bees on Summer Stands," was absent, and a paper on the subject was read by the Secretary.

"How to Manage 500 Colonies for Extracted Honey with the Least Labor" was the subject of an address by Mr. C. P. Dadant, Hamilton, Ill. His talk was very pleasing, and he answered the many questions asked him on the production of extracted honey, in a thorough manner.

The afternoon session, which was the closing session of the meeting, was given mostly to business of the Association and the election of new officers. By a unanimous vote of the convention the Secretary, Mr. O. H. Schmidt, Bay City, was instructed to cast the vote re-electing the entire list of officers of the previous year. It also elected the President, Mr. Jenner E. Morse, as the next delegate to the National Association, and the place of the next Michigan convention is Lansing, at the Agricultural College.

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FITTING SUPERS TO ODD-SIZED FRAMES

BY R. F. HOLTERMANN

There are two distinct classes of beekeepers. Those in one class have every frame in the apiary the same size, and even of the same make, the brood-chambers uniform, and the upper stories of the same capacity and size. By that I mean the frames are not only of the Langstroth dimensions, but they are all either Hoffman, staple-spaced, or not self-spacing at all.

On the other hand, the beekeepers of the other class buy almost any thing which is a beehive, not because the bees are in good shape and they get them at the right price, and intend to put them into other hives as soon as time or perhaps even money will permit, but because a hive is a hive, and the matter of uniformity or interchangeableness does not enter into their calculation. Those of the latter class never make much headway in beekeeping.

To the first class I aim to belong; *but* I have bought a good many colonies of bees, and in that way have many frames which, while of the Langstroth type, are not staple-spaced, but spaced by the Hoffman method, and some are not self-spaced at all. Unless a colony has crooked combs or lack of time does not permit transferring, I aim to get every one into the twelve-frame Langstroth hive soon after buying. However, there have been times when I have had to fit a super upon a hive which did not fit it for perhaps either length or width, and necessity has schooled me to do this with a very fair amount of success.

If a hive is not wide enough for the super, the queen-excluder can be made to stick over on each side (the width of the rim is generally ⅞ inch), or a cleat can be tacked on each side of the hive. The same can be done at the front of the hive. The difficulty here is with the cover; and the only way out of this is to take some roofing-paper, tack it on a rim, and put the previous cover on top of this. At the season of the year when supers are on, this answers fairly well.

Brantford, Canada.

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ISLE-OF-WIGHT DISEASE ABATING

A Criticism of Some of the Statements Made by Joseph Tinsely in the Sept. 15th Issue

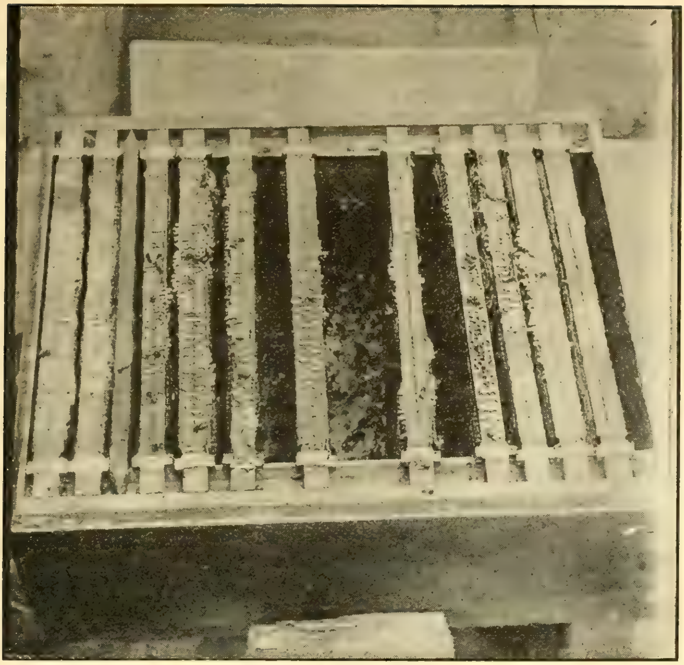
BY JOHN SMALLWOOD

Mr. Tinsely's experiences, p. 647, Sept. 15, are so diametrically opposed to those of others and to my own that I feel compelled (lest there should be any mistake) in default of some one better to take up the cudgel myself and dispute them. But first let me say that the rock-bottom and exhaustive authority on this question is the Report of the Board of Agriculture (price 1 shilling, post free, from the Board); and as there is a revision of it published this year it is the last word on the subject.

Let us notice especially the first paragraph of your correspondent's letter. Writing of the disease he remarks, "It shows no sign of abating." It is evident the writer either is too careless or else has not taken the trouble to acquaint himself with the truth.

Unquestionably during this current year the scourge *has* much abated. Better climatic conditions, an abundant yield, and also probably because the weak colonies have been wiped out, are the possible reasons for the improvement. I should very much have liked to give official statistics; but as there are none published, this is impossible. I must, therefore, prove my assertion from other sources.

As expert (or inspector) for two counties, Oxford and Middlesex, the latter of which lost 80 per cent of the colonies in 1910-11, my personal visits to our subscribers have occupied me from the early spring until the date at which I am writing. I have found very few new cases; in some instances even the bees have seemed to cure themselves, and



Colony killed by Isle-of-Wight disease.

unquestionably the colonies compare favorably with the two previous years.

And I have other interesting evidence. When the pestilence was at its height, every morning the *British Bee Journal* received quite a consignment of samples of dead bees on which to adjudicate the cause of their demise—a kind of coroner's inquest. Now, the *Bee Journal* informs me, very few are sent; further, callers and correspondents from all parts of the kingdom write and speak of the abatement of the disease and the marked improvement. I think, therefore, we may comfort ourselves very reasonably with the hope that we are through with one of those cycles of years in which this disease appears. In no way is your correspondent's statement true, that it shows no sign of abating.

London, Eng.

MORE ABOUT THE ISLE-OF-WIGHT DISEASE

BY W. HERROD
Junior Editor British Bee Journal

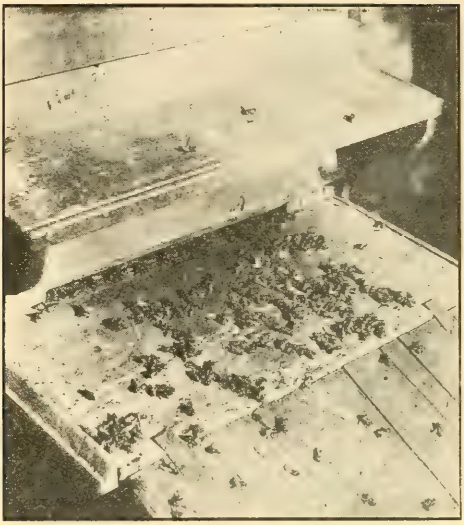
I notice on p. 647, Sept. 15, an article on the above by Joseph Tinsely which is most misleading. It is a pity that such canards should get into a paper of GLEANINGS' standard. Your correspondent is a little careless in what he says, nor does he take the trouble to verify the statements made to him by others.

In the first place, his statement that "the disease shows no sign of abating" is entirely wrong. In my capacity as junior editor of the *British Bee Journal* I claim to have the best opportunity of any one in Great Britain for judging this, and I can assure you it is abating. In some districts it has disappeared altogether. Take, as an instance, the apiary at Swanley, which he mentions. This was attacked in 1910, but there has been no outbreak since then.

Right from the commencement of the disease, bees have succumbed from it in winter as well as summer. He speaks of the bees "seizing small pieces of grass and weeds to raise themselves higher where they clustered in knots." Can anybody understand what he means? Fancy a knot of bees clustering on a blade of grass! What really happens is that the bees cluster in knots on the alighting-board and on the ground. His illustrations of dead bees, etc., are misleading. Similar ones could be taken at any time by any beekeeper. The pictures I send show diseased bees actually clustering on the alighting-board; a colony dead, and the staining of the outside of the hive, which occurs far more frequently than staining inside.

There is no conflict of opinion as to cures. A number of beekeepers are trying hard to find a remedy, and the rest are praying that they may be successful.

If your correspondent knew as I do the tremendous amount of work done by the Board of Agriculture he would not make the remarks he does. One thing they have proved conclusively is that the disease has been spread by careless and unscrupulous beekeepers, and they state it is impossible to stamp it out until a "Disease of Bees Act" is obtained. Your correspondent is one of those fighting against this being obtained, as will be seen from the following under his



Alighting-board of colony afflicted with Isle-of-Wight disease, showing the bees gathered together in knots.

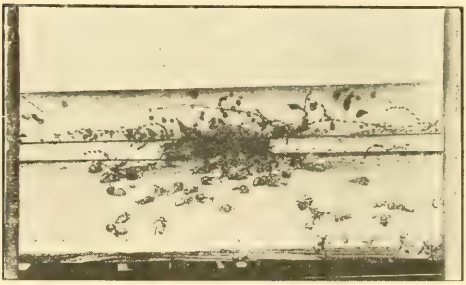
name in the Staffordshire *Chronicle* of Aug. 2, 1913:

> It is cause for congratulation that the Bee-disease Bill has been dropped this session.

Then to show how inconsistent he is, compare the following paragraph from the same paper with the article written in GLEANINGS:

> To show the fallacy of hastening such legislation, it is now candidly admitted that in many cases of Isle-of-Wight disease, the bees will overcome the pest if given time; and I have also proved this with my many experiments. Had legislation been in existence, many excellent colonies would have been destroyed.
> In two or three counties in England there has been such a wholesale destroying of colonies that it is not possible to raise a honey show this year and Warwickshire is one of them. One can not help but think that too much has been made of the disease, and that many stocks have been destroyed that had no Isle-of-Wight disease at all.

Now, any one with the slightest experience of Isle-of-Wight disease knows that, once a stock is attacked, it is doomed.



Entrance of a hive containing a colony afflicted with the Isle-of-Wight disease. Note the staining of the front of the hive.

His statement that Italian bees are not affected is as inaccurate as the rest of his remarks. There are not many Italian bees kept in Great Britain, so that it is difficult to make a comparison. The disease is no respecter of the race of bees, and I have had a number of specimens of Italian and Carniolan bees sent me which were badly affected.

He mentions one county where 500 colonies perished. I can tell him the number in that county is thousands and not hundreds, and also that his informant wrote in a contemporary in July, 1911, "I shall be able to go on and keep my bees and not let them die of disease as was the case at Swanley." That boast has not been fulfilled, as his apiary is among those wiped out in the county mentioned. It is the gross ignorance of people of this description which is the means of spreading disease in this country.

Then with regard to the queen he states that "it is a peculiarity of the disease she is the last to die," but gives no reason for this. Surely if he had studied the disease he should know. Neither queen nor brood is affected, because their food is given already digested, therefore it does not contain the germs of microsporidiosis which undigested food often does.

London, Eng.

* * *

LIQUEFYING GRANULATED HONEY

The Tops of the Cans Should Not be Submerged in Water

BY T. P. ROBINSON

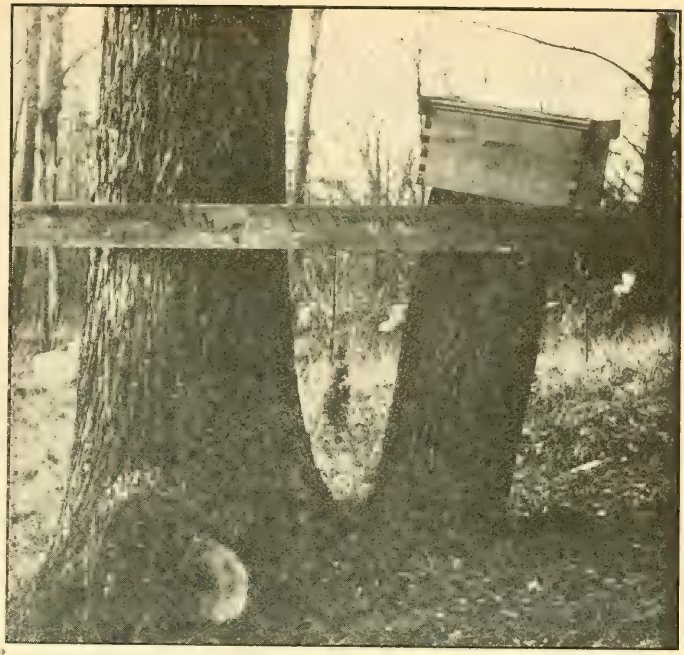
The writer's attention was called to Mr. Louis H. Scholl's article on heating granulated honey to reliquefy it, in the Nov. 15th issue; and having had much experience in this work I have decided to offer a few remarks.

Mr. Scholl is right in his statement that honey should be heated slowly for best results, but painfully wrong when he tells us to submerge the cans in hot water and cover the top of the vat entirely. One great danger of inundation is that water is liable to creep in through the caps of the cans. The other is that of overheating the honey. I have heated something like 20,000 pounds of honey since August, and I think the matter of reliquefying honey a part of beekeeping, just the same as any other part of the work, which is an absolute requisite in this part of the State with our cotton and horsemint honey.

My cauldrons or vats hold 12 five-gallon cans each, and I usually heat about 2000 pounds at one time. The cans are made just as deep as the five-gallon cans are high plus one inch to accommodate wooden strips placed in the bottom of the vat on which to place the cans to prevent burning the honey. The water in the vat comes to a point one inch from the top. The vat is placed on brick six inches high, so as to have the fire flush against the bottom of the vat. When heating begins, the water is used as a thermometer. The water in the vat around the honey is heated to the temperature of hot dishwater, and held at this temperature. Presently the heated honey will begin to flow to the top of the can, allowing the granulated part to sink to the bottom of the can. This process of the heated honey rising and the solid parts going down continues until the whole mass is liquid. I heat the honey until it reaches about two-thirds the boiling-point. The cans are kept sealed tight all the while to retain the aroma of the honey. The stirring referred to by Mr. Scholl is unnecessary.

I reliquefy and redeem chunk comb honey by thus heating, and have as a result fine extracted honey with a nice cake of wax. I have used this method of reliquefying honey for 13 years, and it has been very satisfactory to myself and customers. I have yet to receive my first complaint.

Bartlett, Texas.



B. J. Mayo's tree hive, weighing, with the bees, in the neighborhood of 500 pounds.

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A TREE HIVE

BY C. B. MORRIS

B. J. Mayo, of Metuchen, N. J., a beekeeper of forty colonies, has an interesting specimen of bees in a tree-trunk that was obtained in November, 1913, at a cost of considerable trouble and labor.

The colony was discovered in the woods, about twenty-five feet from the ground, in a dead tree. An investigation proved the worth of both bees and honey, and on the following night the first steps toward gathering were made. The tree-trunk was sawed at the point where the bottom of the combs was correctly judged to be, and allowed to fall over and down into a smaller one. The smaller one was cut, and allowed to fall into a still smaller one, and so on until four trees in all had been cut down. This permitted the lowering of the hive by degrees, and thus saved the otherwise 25-foot drop that would have resulted in an entire loss of bees.

As the bees were of the Italian breed, and not the common black kind that are so often found in the woods, it was an object to save them as well as to obtain their honey.

The top half of the tree was landed safely, and the extent of the colony judged to be 51 inches upward from the bottom cut. This estimate proved to be wrong, as the saw passed through the combs, leaving about a quarter of them still in the top. The smaller portion was then cut off, and, with the larger one, placed in a wagon and taken to Mr. Mayo's apiary.

The picture shows how the larger portion was made fast to a tree, the smaller one lying on its side empty.

It is the desire of Mr. Mayo to have the bees in the larger portion work their way up and into the hive on top, filled with the remains of extracted honey-combs, and then, under favorable conditions, remove the colony to a place where other hives of this pattern are located. Already this procedure

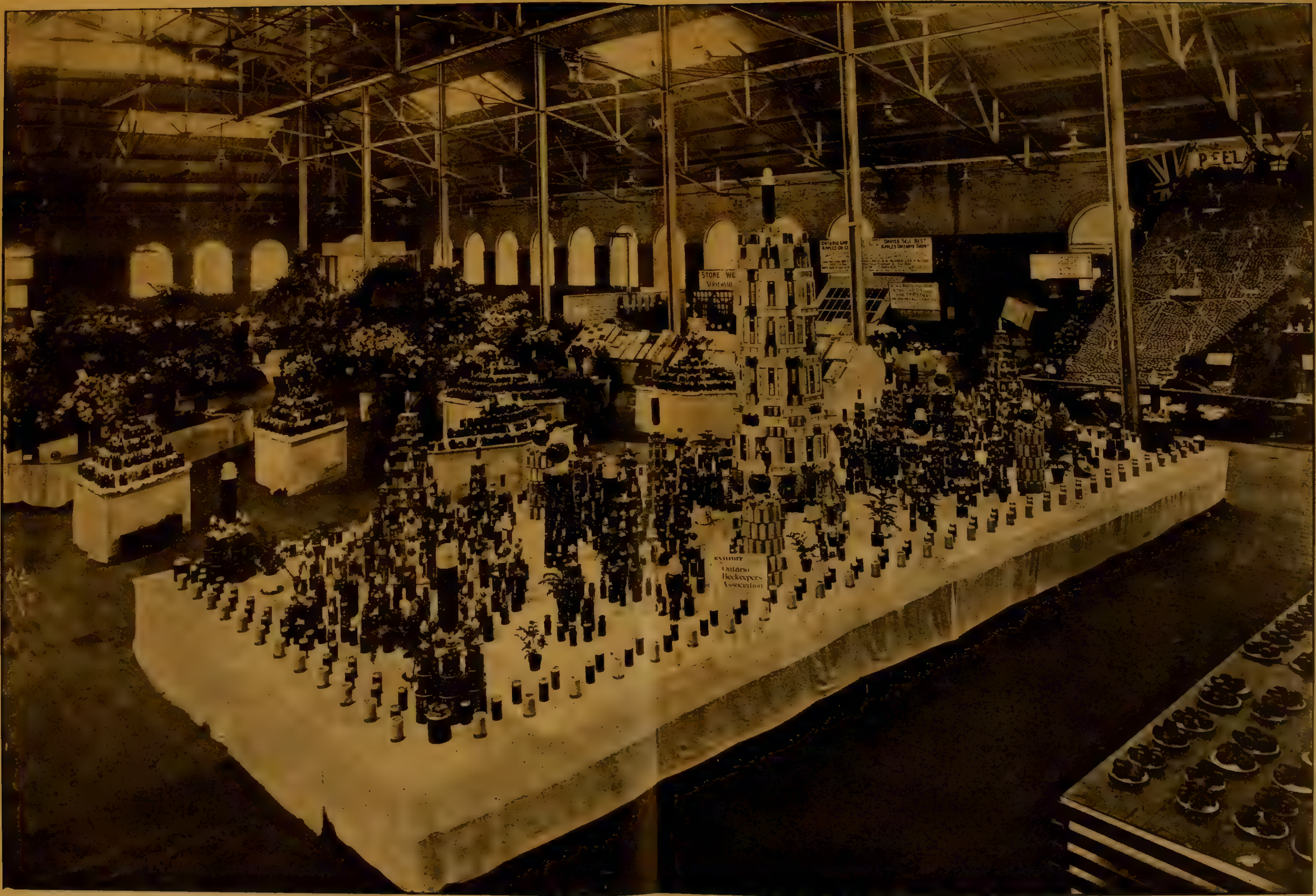
Exhibit
Ontario Beekeepers Association
PEEL

Ontario honey exhibit in Horticultural Building of the Toronto Exposition in November, 1913. See next page.

A portion of the apiary of B. J. Mayo, Metuchen, N. J. Mr. Mayo started three years ago with only five colonies. The cover picture for this issue shows Mr. Mayo and his son standing near the edge of their apiary.

has been successfully worked on the smaller portion, and the honey taken from it.

The hive as it now stands measures 51 inches in height, 58 in circumference, and is estimated to weigh 500 pounds.

Metuchen, N. J.

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THE ONTARIO HONEY EXHIBIT AT THE HORTICULTURAL EXHIBITION, TORONTO

BY E. R. ROOT

Last year, in November, there was held in Toronto the usual horticultural exhibition and poultry and fat-stock show. But the thing that would interest the beekeeper particularly was a magnificent honey exhibit in the very center of the horticultural building, mounted on a large table. This exhibit was prepared under the direction of Mr. H. G. Sibbald, of Claude, Ontario, a director in the Ontario Beekeepers' Association, and one of the prominent and most successful beekeepers in the Province. When I say " successful " I mean that he is one of the largest producers of a fine table extracted honey on the continent. There are but very few men whose crops are larger, and certainly none who produce a finer honey. During the winter he changes his residence to Toronto, where he looks after the selling of his crops.

When plans were made to have this horticultural exhibition, the beekeepers of the Province saw to it that their allied industry was properly represented. As we know that bees make more and better fruit possible, what could be more appropriate than that honey should be shown at this horticultural exhibition?

Perhaps the most striking thing in this whole exhibition hall, unless it be the Peel County exhibit of fruit opposite, was the Ontario beekeepers' honey exhibit as shown in the illustration preceding, occupying as it does the very center of the vast building.

Mr. Sibbald, though he had had no previous experience, or at least a very limited one, was prevailed on to take charge of and erect this exhibit. That he has the artistic sense so necessary in a work of this kind, I think will be agreed to by all who look at this picture. Instead of following the conventional lines of a blocky or massive display it will be noticed that he adopted a variety of schemes to set off the honey. The big tower in the very center of the exhibit, made up of comb honey and bottles of extracted, not too crowded, stands out in strong relief. The pyramids and smaller towers are scattered here and there with small groups of honey in various parts. The effect with the open spaces is very pleasing.*

I have before spoken of the beautiful color and quality of Ontario clover honey. It comes as near being water-white as any honey I have ever seen, with one exception, and that is the guajilla of Texas. As every one knows, honey in a picture will take black; but if you can imagine these black bottles containing a very pale crystalline honey you can get something of an idea of the beauty of this exhibit. Of course, there were dark honeys, such as buckwheat, but the great mass of the display was made up of Ontario white clover.

By the way, our correspondent, Mr. Byer, on page 6 of our last issue, another large producer of fine honey, thinks I shall be taken to task for intimating that the whiteness of Ontario clover is due to thistle. We have no thistle in our clover honey on this side of the line; and in view of the fact that the Ontario product has something else in its flavor that is very pleasant, and lighter in color than our clover, I naturally concluded that thistle explained the difference. Nor did several of the Ontario beekeepers with whom I talked demur at the suggestion. Mr. O. L. Hershiser, one of the best judges of honey in the United States, and who was a judge of some honey at the Ontario convention, gave it as his opinion that there was a little thistle in much of the Ontario clover honey.

In our last issue, also page 6, our correspondent, Mr. Byer, could not refrain from commenting on the fact that a certain editor had been held up by a "cop" for stealing honey. Now that "the cat is out of the bag" I might as well "put on the shoe" and explain. I stood, very innocently, in front of this honey exhibit, as shown in the picture, while a good beekeeper kept me in close conversation. Whether there was any design on his part, I know not. I remember somebody bumped up against me, and a movement in or toward my overcoat pocket. As the occasion of the collision was my friend Charles E. Hopper, I did not feel to see what I missed—or in this case acquired. I merely supposed it was an accident, and let it go at that. Soon afterward a Canadian policeman, with an artificial sternness on his face, took hold of my arm and said, "So you are the chap who has been stealing some of this honey? I have caught you with the goods on you." Remembering that bump against my pocket I reached down and found a bottle of honey. I immediately turned about and saw a twinkle in the eyes of Mr. Sibbald, Mr. Hopper, and, I think, of Mr. Byer. I turned to Mr. Policeman and said, "Those fellows over there have been stuffing my pockets."

"That is a very good story for *you* to tell," said he; "but you had better come along with me." By that time the assumed sternness on his face had broken into a smile, and a suppressed giggle was heard in the direction of my friends.

It seems that some of these bottles of honey, so easy of access, had been stolen, and the police had been instructed to keep a watch, and the first man he caught with the goods on him was the editor of GLEANINGS! Well, if I do not get into any worse scrape than this I shall count myself fortunate.

FIELD MEETING OF THE NEW JERSEY BEEKEEPERS' ASSOCIATION

BY E. G. CARR

One of the best-attended meetings of the New Jersey Beekeepers' Association was held at the apiary of Geo. Grover, on June 25, there being 63 present.

The first subject under discussion was the improved robber cloth by Dr. Cheney, of Hoboken. This, besides being ingeniously gotten up, contains valuable features. This was fully described and illustrated, p. 270, April 15. Another device shown by Dr. Cheney was a stand on which to place removed supers, which is so constructed as to make it almost impossible to mash bees on the under side of the super, and, besides, is very simple in construction.

The next was a discussion by W. W. Case, of the tube escape and its uses. So far as can be learned, Mr. Case is the originator of this device; and, while primarily designed for the treatment of foul-broody colonies, it is also ideal for transferring from any sort of hive or box which can be made bee-tight. This was also fully described and illustrated, page 406 of the June 15th issue.

After lunch, "Short cuts in finding queens" was discussed by I. J. Stringham, of New York; Dr. Cheney, of Hoboken, and Pres. Root, of Red Bank. Mr. Stringham's plan is particularly adapted to finding queens when robbers are bad, and in black or hybrid stock. The operation is as follows:

The hive which is to be manipulated has placed near it a bottom-board; on this a queen-excluder and two empty hive-bodies over it. The hive is gently smoked at the

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* The great trouble with many honey exhibits is that the display is too crowded. The open spaces, as in the exhibit above, help to set off the groups of honey.

One of C. H. Root's apiaries showing his winter cases.

entrance, lifted from its bottom, and placed on the two bodies. It is now opened, and two outside frames removed; and after making sure the queen is not on them they are covered from robbers. The remaining frames in the hive are spread and smoked freely. The bees, together with the queen, will cluster under the bottom-bars.

Now raise the hive about an inch, and set it down sharply, thus dislodging the cluster of bees. Replace the combs on their stand, return the two removed combs, and, after smoking the bees from the upper empty body, remove it and place the lower body with the queen-excluder over the brood-nest. Now gently smoke the bees down through the queen-excluder, and the queen will be found trying to pass through the zinc.

Dr. Cheney makes use of a queen-excluder on which is nailed a four-inch board flush with the edge. The hive under manipulation is removed from its bottom-board, and an empty hive-body put in its place. On this is put the queen-excluder with the board attached so it leaves about 3 inches of the lower hive open at the top. The hive of combs is now placed square on the queen-excluder, and the combs removed one by one; and after making sure the queen is not on them they are placed in the lower body through the uncovered space, each one being shoved along to make room for the next.

Pres. Root said all who enjoyed this kind of sport were welcome to it; but this way he considered superior. It is, to keep nothing but quiet gentle Italians; and he never had any trouble locating the queen by just looking for her.

The last subject to be discussed was the winter case, by Pres. Root. This case is of Mr. Root's devising, and is double-walled with two inches of packing, and telescopes over the regular dovetailed hive-body, the handhole cleats being left off to insure a close fit.

The brood-nest is covered with the thin super cover. In connection with this winter case is used a double-packed bottom-board and packed telescope cover. Mr. Root claims a yearly profit from the use of this case of $2.00 per colony in saving in winter stores and extra honey gathered early before the cases are removed.

As an indication of the interest in this meeting, one couple started at three o'clock A. M., and rode bicycles 13 miles to catch a train. Several members were enrolled.

NUMBERS AND NAMES OF THOSE IN SUMMER MEETING.

1. G. V. Barnes, Pemberton, N. J.
2. Geo. Grover, Trenton, N. J.
3. B. J. Mayo, Metuchen, N. J.
4. P. G. Snyder, Swarthmore, Pa.
5. C. H. Root, Red Bank, N. J.
6. Mrs. W. F. Dilts, Flemington, N. J.
7. W. W. Case, Frenchtown, N. J.
8. Mrs. E. G. Carr, New Egypt, N. J.
9. Edna Carr, New Egypt, N. J.
10. J. A. Hallinger, Titusville, N. J.
11. C. G. Lippincott, Little Silver, N. J.
12. S. Powers, Wading River, N. J.
13. F. G. Fox, Pipersville, Pa.
14. Henry Bassett, Salem, N. J.
15. Julius Hittel, Plainfield, N. J.
16. R. Grabowski, Trenton, N. J.
17. G. Franssen, Lyons Farms, N. J.
18. Mordecai S. Haines, Mt. Holly, N. J.
19. W. I. Green, Shrewsbury, N. J.
20. Hudson B. Haines, Mt. Holly, N. J.
21. **W. B. Bennett**, Bloomfield, N. J.

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Field meeting of the New Jersey Beekeepers held at Trenton, N. J., last summer.

22. J. L. DuBree, Jenkintown, Pa.
23. Dr. C. D. Cheney, Hoboken, N. J.
24. F. C. Templeton, Plainfield, N. J.
25. Dr. W. J. Wolfert, Red Bank, N. J.
26. Ed Krekl, Northvale, N. J.
27. Jno. D. Antrim, Burlington, N. J.
28. E. J. Dienst, Newark, N. J.
29. Wm. Clayhunce, Titusville, N. J.
30. Henry Mull, Newark, N. J.
31. Richard D. Barclay, Philadelphia, Pa.
32. W. E. Housel, Hampton, N. J.
33. Jos. W. Tonkin, Sicklerville, N. J.
34. Jos. J. Wolcott, Eatontown, N. J.
35. Dr. H. D. Powelson, Bound Brook, N. J.
36. I. J. Stringham, Glen Cove, L. I.
37. Harold Hornor, Mt. Holly, N. J.
38. J. H. Wilson, Ringoes, N. J.
39. C. S. Sharp, Newark, N. J.
40. E. C. Stevenson, Burlington, N. J.
41. W. A. Selser, Philadelphia, Pa.
42. Jas. J. Keller, Glendale, L. I.
43. Chas. Schilke, Matawan, N. J.
44. Mrs. S. Powers, Wading River, N. J.
45. Mrs. E. C. Stevenson, Burlington, N. J.
46. Mrs. H. D. Powelson, Bound Brook, N. J.
47. Miss Grace O'Connell, New York.
48. Mrs. Julius Hittel, Plainfield, N. J.
49. Mrs. B. J. Mayo, Metuchen, N. J.
50. Mrs. Henry Mull, Newark, N. J.
51. Mrs. E. E. Alexander, Red Bank, N. J.
52. Wm. J. Corlett, Clifton, N. J.
53. Sim Bardsley, Edge Moor, Del.
54. E. G. Carr, New Egypt, N. J.

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BEEKEEPING IN THE TROPICS

An Open Letter to F. R. Beuhne

BY CARLOS M. CARMONA

Although I have read GLEANINGS for many years I have not cared to enter into discussions about the merits or demerits of plans advocated relating to certain beekeeping questions carried on in its columns, on account of my ignorance of the language, because of my meager knowledge of beekeeping, and also because of so much contradictory advice given by the different contributors. Furthermore, most of the questions discussed refer to questions not affecting tropical beekeeping; and, after all, I have to adapt American conditions and knowledge of beekeeping the best I can to local tropical conditions for want of any source of knowledge of tropical beekeeping to which I may apply.

But lately I have found GLEANINGS improving so much, and publishing contributions from different parts of the world touching matters that also affect tropical beekeeping, that I have been much interested, and have been benefited greatly on certain points which I have heretofore been unable to understand or explain. Having a new interest in the matter, therefore, I beg to ask a few questions and report my experiences to confirm certain questions dealt with recently.

To begin with, I beg to confirm every word, p. 537, Aug. 1, as my own experience, beginning, " Years ago it used to be much heavier," to the end of the article, with the exception " I merely abandoned the plan as unreliable," for it is only lately I abandoned it on account of recent contributions in GLEANINGS, and presto! the loss of 50 per cent of my queens stopped, to my surprise and delight. Formerly I had noticed that, after a swarm in a normal colony issued, the remaining virgin queen always returned fertilized, and began to lay in due course without any meddling, notwithstanding the colonies were placed quite close together and under a shed, and while the nuclei, placed as far apart as possible, with the entrances contracted with different contrivances to help the queen find the location, were queenless most of the time. I could not explain the reason, but now I can. The last controversy about the matter enlightned me fully, and the experience confirms it.

The answer to the query on p. 536 is, "*Normal conditions,*" as in the case of supersedure.

Mr. Beuhne says, p. 535, "Early in the spring I exchange queens between colonies having a three-year-old queen and nuclei with previous season's queens." Would he or you please explain the *modus operandi?* It may be quite plain to experts, but I should be thankful for details. By the by, this three-year-old-queen business does not confirm last paragraph on page 518.

If "hives are tiered up three and four stories high *without a queen-excluder,*" how is the extracting managed? No brood in the top stories? How is one sure where the queen is? How are the supers taken from the hives—by using Porter escapes or brushing the bees from the combs? How about the lower stories having combs full of honey at the sides? Is there any entire absence of drone comb in the upper stories?

Mr. Beuhne says, p. 535, "These are, of course, the best colonies, and the general average for the 100 colonies in this apiary." How is it that out of eight colonies in this apiary not less than five colonies are numbered over the one hundred—viz., 260, 248, 205, 127, and 256?

In the spring Mr. Beuhne expects the queen to lay in at least two stories; therefore, before that, she is confined to one story. As the colonies are tiered later three and four stories high, where and how does he keep so many empty combs? I have noticed the instructions given on pp. 547 and 486. This is a perplexing question with me, and one of long standing. Although I can not practice the freezing part, for obvious reasons, I thought that combs kept from the moths would last indefinitely, being made of wax. Two galvanized tanks of 250 and 150 gallons each were properly packed to the top with the combs, carbon bisulphide applied at intervals, and the tanks properly covered. But the combs crumbled, disintegrated, and turned to earth in the end. Only a heap of dust at the bottom of the tanks and the stacks of wired frames was found. The tanks were in the extracting-room.

Trinidad, B. W. I.

[Mr. Beuhne's reply follows.—Ed.]

EXCHANGING QUEENS BETWEEN DIFFERENT COLONIES

BY F. R. BEUHNE

In reply to Mr. Carmona, above, as to the method of exchanging queens as mentioned in my article, Aug. 1, p. 535, there is really very little to explain. A comb of brood with the three-year-old queen on it is taken from the colony and inserted in the vacancy made in the nucleus by the removal of a similar comb with the young laying queen. The latter is then in turn put into the vacant space between the brood-combs of the colony. A small box is used to hold one of the combs and queen while the other one is put into its place. This exchanging of queens would, perhaps, be somewhat risky if the bees in an apiary are demoralized by robbing. I have not, however, had a single failure. Of course, queens can be exchanged by the introducing-cage method; and when the nuclei contain frames of different size from the colonies it is the only possible way. I much prefer the other method, as there is then no need of going back to see whether the queen has been released and to remove the cage.

QUEEN-EXCLUDERS; TIERING UP.

In answer to the question, "If hives are tiered up three and four stories high without a queen-excluder, how is the extracting managed?" I would say that the theory is to let the queen have the free range of the whole hive before the main honey-flow. At the first extracting, the queen and the most suitable brood-comb are put into the bottom body with an excluder between it and the upper stories. An exit is provided for drones to escape from the upper stories to avoid getting the excluder clogged with dead drones. I admit this entails some extra work and attention to details, but it is well paid for by results. Inserting the queen-excluder when extracting for the first time is the best method for "an ordinary honey-flow." If the flow is heavy, such as mentioned on pages 534, 535, Aug. 1, the excluder is not needed at all. The intake of honey is so great that the queen is forced down to the lower combs. No brood in top stories? Yes, of course there is. Brood from top stories is exchanged for combs of honey in the lower chamber. Porter escapes are not used by any one here so far as I know. In two of my apiaries the very small ants would be in before the bees get out of the combs; and why go to a hive twice—once to put the escape in, and then to take the honey away when you can take the honey away at once in very little more time? One frame is taken out and temporarily placed against the hive; the bees of the succeeding ones and the first as well are shaken *into* the hive (not in front of it). Where are the bees which were shaken off one or two bodies of combs while the latter are being extracted? In my own practice they are already at work on the empty combs, which I left there when removing full ones. If I have no spare empty combs when commencing extracting I replace the first full combs removed with frames of full sheets of wired foundation. The extracted combs as they come from the honey-house are exchanged for full ones, and so on to the end of the day's work, when the remaining bodies of extracted combs are placed on top of the hives to be extracted next day. Thus it will be seen that taking away the honey and returning extracted combs is one operation.

Is there an entire absence of drone comb in the upper stories? No, not entire; but as nearly so as the use of full sheets of foundation in all new frames can make it. To make the best use of a heavy honey-flow, such as we get from some of our eucalypts, one must have plenty of supering. It is all a matter of preparation during the short winter, and the investment of a little extra capital. When the flow is on, the bees will draw out one set of frames of foundation after another with astonishing rapidity.

There are conditions of weather or other circumstances which will sometimes prevent extracting while yet the bees are storing steadily. Well, put on more supers, and you will increase your yield considerably. Bees will not fill up a cell to the rim with thin honey, because it would not evaporate properly; and when the cells of one set of combs are half full, and no other empty ones available, the bees are not doing what they might do.

How is it that, out of eight colonies in an apiary of 100 stocks, some are numbered above one hundred (page 535, Aug. 1)? The answer to this question is: All my colonies are numbered. The number individualizes the colony the same as a name does a horse or a cow, and therefore the number follows that colony wherever it goes. The colonies in the apiary referred to were selected from my home apiary, those in the best condition to stand the transportation being picked out. They retained their original numbers, otherwise I should lose all record of their past performances, pedigree of queens, etc.

In reply to the question as to keeping surplus combs during winter. I can add nothing to what appears on page 547, Aug. 1, and in the A B C and X Y Z book, except that I have never fumigated combs in any way, and never have any trouble with waxworms, although they are plentiful enough in this district. I put the combs away in the supers, covered moth tight in a bee and moth proof honey-house; and as the combs of Italian bees are free from moth eggs while on the hive, the important point is not to let the moths get access to them by leaving them unprotected after removal from hive and before putting away moth-tight. It is little use putting combs away secure from moths when the moths are allowed to lay eggs in them first. I am of opinion that the combs in the galvanized-iron tanks were destroyed by the action of carbon bisulphide applied to excess.

Tooborac, Victoria, Australia.

WINTERING BEES ON LOAF SUGAR

BY E. G. CARR

In replying to the question as to when to transfer bees, somebody has said, "Whenever you wish." While this can not be taken literally as meaning at any time of the year, still if one has the material and skill, transferring can be successfully done at seemingly very unfavorable times.

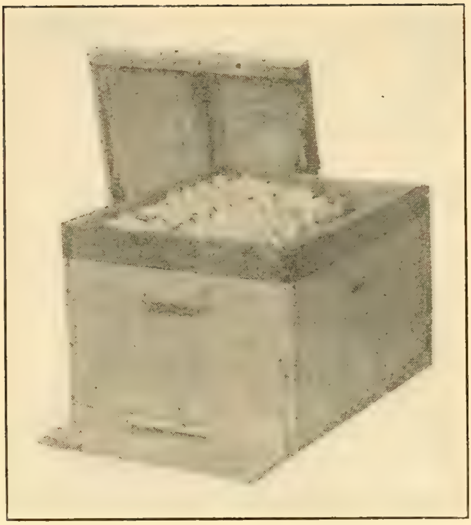
A neighbor wishing to "take up" a box hive asked how best to kill the bees. Wishing to experiment with loaf sugar alone as a substitute for honey for wintering, I offered to take the honey from the box and leave it with him and take the bees.

On Dec. 16, 1912, the weather being fair and the temperature near 50, the old box was turned bottom side up, well smoked, and the side pried off. The combs were removed one by one, the bees brushed into a box, taken home, and dumped into a ten-frame hive containing wet extracting-combs. These combs were extracted late, and contained perhaps a pound of honey in all. A two-inch rim was put on top of the hive. The following day an unsuccessful search was made for the queen.

On Dec. 21 another search was made for the queen; and two patches of brood, each about six inches in diameter, were found. Knowing the queen to be safe, ten pounds of loaf sugar was put on top the frames, and an ordinary flat cover placed on the hive. No packing whatever was used.

An examination on Feb. 1 showed the cluster of bees partly above the frames and through the loaf sugar, this being also the condition on Feb. 8.

March 20 the sugar was removed, weighed, and found to be 6 lbs., 4 lbs. having been taken down in three months. At this time



Hive fitted with tray for feeding loaf sugar in cold weather.

two frames contained brood, the total being almost equal to 1 1-3 framefuls. There was less than half a pound of stores in the combs, a few cells being sealed. A very nice supply of new pollen had been gathered, the bees working on maples and elms at intervals since Feb. 21.

On March 31 the sugar was again weighed, showing 5¼ lbs. still on top of the frames, and not over half a pound of stores in the combs. There was no noticeable gain in brood after March 20, and very few days when bees could do much work, owing to high cool winds and rain.

About the 10th of May one frame of honey was given this colony, although there was a small amount of loaf sugar left. This colony was worked for comb honey, and about 40 sections from clover taken. It was quite a small cluster of bees when originally transferred.

The experiment shows that bees in this climate can be wintered on loaf sugar alone.

It has been suggested that this knowledge can be made of use, not only in supplying a deficiency of winter stores, but also in treating for *European* foul brood after the breeding season when there is not on hand a supply of field combs on which to shake the bees. The idea was to extract the honey from the infected combs, return them to the hive, and place loaf sugar above the frames. The theory is that the bees will thoroughly clean the cells of honey, preferring it to the loaf sugar, and there will be no infected honey left to start the disease when breeding commences.

It is well to bear in mind that this is not given as a tested cure for European foul brood, but only a plausible theory which may or may not be of value.

New Egypt, N. J.

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THE 24TH ANNUAL CONVENTION OF THE CALIFORNIA STATE BEEKEEPERS' CONVENTION

BY P. C. CHADWICK

The convention was held at the Y. M. C. A. building in Los Angeles, December 9-11, as per schedule. Nearly the entire time was taken up with business, the usual papers and lectures being dispensed with that all matters of business might have careful attention. Harmony prevailed through the session, though at one time danger ahead was signaled when the failure of our foulbrood law was being discussed. Trouble was averted, however, by a prominent member pointing out that there was to be nothing gained by wrangling over the question.

The meeting was, indeed, a representative assembly of active beekeepers of the State. Familiar faces from the north and the south were to be seen among the workers. There were also beemen present from Idaho, Utah, Nevada, Colorado, and Ohio. Most prominent of these were Mr. G. C. Matthews, of Idaho; Harry Crawford, of Colorado, and A. L. Boyden, of Ohio. Some new members whose faces have not before been seen in the convention were welcomed, for they must in time take the place of the older ones, just as, in the last twenty-four years, new ones have come and old ones have gone, there being always an enthusiastic bunch, nevertheless, to carry on the work. One is reminded more of a fraternal or religious gathering than that of beekeepers. Hope abounded in spite of two seasons of failure, and there were smiles and jollying words for every one. Indeed, the phrase might well be coined, "As hopeful as a beekeeper."

There was no regular session on the 9th, the afternoon being devoted to pre-convention committee work.

At 10:30 A. M. of the 10th, Pres. Farree called the regular session to order. This session was occupied by the reading of the minutes of the previous meeting, the treasurer's report, and the appointment of new committees. The afternoon session was short as a body, nearly the entire time being devoted to committee work. all members willing to work being placed on a committee. The banquet announced for 6:30 P. M. was deferred until noon of the 11th.

On Dec. 11 the convention was called to

order by Pres. Farree. The exhibit committee reported progress, but stated they were in need of funds to carry on the work, and an appeal was made to every beekeeper of the State to aid by sending in immediate donations or give a pledge for a certain amount at a later date.

The corporation committee explained why the Consolidated Honey-producers of California had been incorporated. If I am correct it runs like this: There was a clause in the proposed foul-brood law in which the names of the president and the secretary of the State Association were named as members of the apiarian commission. When the bill reached the legislature it was found that there was no such organization incorporated, and the secretary was so notified. There was a hurry call to organize legally in order that a stumblingblock might be avoided. It was found that it would be impossible to organize under the name of the California State Beekeepers' Association, due to the fact that there was on file in the office of Secretary of State a name very similar, and he would not allow it. It was then decided to adopt the name of Consolidated Honey-producers of California, which was done, the new organization being the legal head of the present association and belonging to it. As nearly as I could glean from the discussion, here was a worse stumblingblock than the one sought to be avoided, for the reason that the new organization was organized, not as a mutual association, but as a profit-sharing company. J. Edgar Ross, of Imperial Co., I think, expressed the situation when he said the appointment of an officer of a business corporation on a commission to regulate its own business could not be sanctioned any more than to appoint an officer of the Southern Pacific R. R. as State Railroad Commissioner. This leaves me with the impression that the governor was justified in vetoing our bill, and that there should be no blame placed on the shoulders of Prof. Cook, as has been done by some. If the new corporation had been organized as a mutual concern instead of a profit-sharing one I believe the bill would have been signed.

The noonday banquet was the most enjoyable time of the session, there being talks on topics of the apiary; toasts, roasts, and jokes, the burden of which fell, as usual, on our good-natured President, Mr. Farree.

At the afternoon session Pres. Farree and Sec. Shaffner were unanimously electeu to their respective offices, Messrs. Bixby and Allen taking the places of Emerson and Mendleson on the executive board. A meeting of the Consolidated Honey-producers of California was called to meet the third Tuesday in January in the Chamber of Commerce to complete arrangements for handling the honey crop and furnishing supplies for the Association.

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THE NEW YORK STATE BEEKEEPERS' CONVENTION HELD AT ROCHESTER, DEC. 2, 3

BY E. R. ROOT

As stated in our issue for Dec. 15, 1913, page 873, this was the largest convention of beekeepers we have had the pleasure of attending this winter in the United States. The only larger meeting was in Toronto, Ontario. President Geo. B. Howe makes a good presiding officer. His enthusiasm is such that it will wake up a whole convention. Ordinary discussions, in which possibly but very few would take any interest, he will enliven with his own personality; and before he gets through he will have everybody wanting to talk. He is also a practical honey-producer as well as a queen-breeder.

With the possible exception of the Colorado Honey-producers' Association, the beekeepers of New York are better organized than those of any other State. This is largely due to the efforts of Mr. W. F. Marks, who for years has been president of the organization, and the man who has taken so much interest in fostering the association idea throughout the State.

On account of our space being so limited it will be impossible for us to give any thing more than a brief resumé of what was said at this meeting. Again, there will be some gaps in our report, not because the discussion was not interesting, but because we were interrupted at times in taking notes.

At the time we entered the convention room there was some talk as to whether the proceedings should be taken in shorthand. It was finally voted down on account of the expense. If there were any proceedings which were worth publishing in full they were those that took place at this meeting.

After some preliminary discussion in regard to membership fees in the local societies affiliated with the State organization, the general program was taken up.

The president, in his opening address, spoke of the importance of advertising our product. He called attention to the honey writing-pads that are sent out by members of the association to the consuming public. These pads,* calling attention to honey as a food, will be kept prominently before the consumer because of their utility. He referred to the importance of having crop reports from various sections of the State and country, in order that the honey-producers might know how prices would probably rule. Under present conditions the small producers set the price. Some plan should be formulated by which these men can be brought into line. Again, we must have organization. This should be so thorough that there will be a spirit of co-operation and a general knowledge of conditions of the season. So far the New York State Association has kept aloof from the National; but the time has now possibly come when the State organization should affiliate with it. The old prejudices of the past should be allowed to die out. If mistakes have been made they should be forgotten. He would recommend that measures be taken to get in touch with the National.

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* These pads were gotten up by W. F. Marks. As they are very unique we will have an illustration of one of them later.

During the afternoon the question "What can be done to prevent the variations in the price of honey?" was introduced by Mr. S. D. House, of Camillus, N. Y. Any one who attended any one of the meetings of the beekeepers in New York could not help noting that Mr. House is a live wire. He is another one whose enthusiam is contagious. Mr. House started a lively discussion. It was not so much what he said as what he drew out of others until everybody wanted to talk. It is not the little beekeeper only, said Mr. House, who is making the trouble with the demoralization of prices. Some of the large producers, who are not in close touch with the organization or with each other, will establish a price of their own that will knock the bottom out of the market. He believes we should have a committee of five to get out crop reports. Later this question was thoroughly thrashed out, in which it was shown that some members were selling too low. It was decided that prices could not be fixed at that time, but that some scheme should be adopted to insure a uniform scale of prices. This subject was thrashed over until it seemed there would be no solution when Mr. Marks moved that the whole matter be referred to the committee on resolutions. This was agreed to.

This was followed by an address by Mr. H. L. Case, of Canandaigua, N. Y., entitled, "Is the capping-melter a necessity? If so, what style is best?" Mr. Case somewhat startled his hearers by saying, "I never saw a capping-melter in my life. I am a producer of comb honey, and therefore have no use for such a contrivance." Then he paid his respects to the secretary for assigning to him a subject that he knew nothing about; but now that he was on the program he was going to say a few things relative to what he had found useful. One of them was a little tin pocket that he attaches to the side of the hive to hold the hive-record. These records are made of pieces of common section boxes. The pocket is so constructed that it sheds water and protects the record from the weather. He had also a scheme for wiring frames that would do away with drone comb.

At the close of his brief address he was followed by Mr. Baldrich, who went on to describe that the capping-melter that he uses is not a device for taking care of the cappings as fast as they fall from the knife, but to melt them after they are drained. The device consists of a double water-jacketed boiler that may be used on a common stove. Mr. Irving Kenyon, secretary, uses something similar to this, and he has found it a great convenience. Mr. House described a machine he had seen at the A. I. Root Co.'s place, that melts the cappings as fast as they fall from the knife.

We next listened to an address from a government man, Mr. Geo. S. Demuth, of the Bureau of Entomology, Washington, D. C., on the subject entitled "Some Critical Periods in the Season's Management." There are several things that might happen to a colony of bees, and some of these are under the control of the beekeeper. The source of nectar and weather conditions, of course, are entirely beyond the control of the beeman; but there are other conditions which the beekeeper may modify; and one of these is the condition of the colony. Sometimes we have all the conditions favorable, and then we can secure a good crop. Then come times when bees need to be fed. Scarcity of stores may mean a loss of brood, of bees, and the honey crop. Then there is the problem of keeping the forces together instead of having them dissipated by unnecessary swarming. This is more difficult to accomplish in the production of comb honey than extracted. The question of when to put on another super, and whether to place the same under or above the one already on the hive, is important. He believed that a great many beekeepers do not give room fast enough. Some err in giving it too fast. He would impress the very great importance of contentment in the family.

At the close of this address Mr. S. D. House spoke of this idea of "contentment," saying that, in order to get the maximum work out of a colony, there must be contentment and not uneasiness—a condition where all hands seem to be busy with the single object in view of gathering nectar from the fields, and making a place to store it. He also indorsed what Mr. Demuth said on the subject of tiering up—that some do not give room fast enough. The discussion naturally turned to the conditions that bring about swarming, and how to prevent or forestall the same. Mr. Demuth in the discussion that followed stated that contentment can be brought about sometimes by giving more ventilation, sometimes more room, or both. The Aspinwall hive, for example, provides both of these conditions. Mr. House said he believed that the Aspinwall hive would effectually stop swarming, but he thought it too expensive, and that a sectional hive, on account of its easy manipulation, was cheaper, and better for the purpose. Dr. Dines agreed. In the course of the discussion that followed, some thought that an overplus of drones tends to induce swarming. Mr. Charles Stewart held that it was not an overplus of drones but too many nurse bees. To this Mr. House and Mr. Demuth agreed. Speaking of the Aspinwall hive, Mr. Irving Kenyon reported that he had tried it out very thoroughly and had found it a success, both in the matter of preventing swarms and in the production of comb honey, but considered it too expensive for the average beekeeper to adopt.

IS IT DESIRABLE TO KEEP BEES IN THE SHADE?

This was discussed by W. D. Wright, of Altamont, N. Y., who is not only an extensive beekeeper but also one of the State foul-brood inspectors. This question, he said, may be answered by yes or no. The apiarist needs shade as a matter of comfort to himself; and incidentally it may be useful to the bees. He had long advocated and practiced using an orchard with medium-sized trees as a desirable place to have an apiary. It is not always possible to have such an orchard, but he was sure that too much shade is too much of a good thing, and for that reason he did not advocate large trees. Shade-boards may be satisfactory, but he considered them objectionable on account of their inconvenience in handling, and because they detract from the appearance of the hive. Years ago he tried out shade-boards, but discarded them. In conclusion: 1. He would keep all hives painted white; 2. Provide a good circulation of air around the hive; 3. Give large entrances; 4. Give all strong colonies plenty of room.

Mr. H. L. Case said he had used shade-boards both for shade and at other times of the year, when the bees do not need them. At such times he puts them in front of the hives to kill the grass.

Mr. Chas. Stewart had a part of his hives in the shade and a part out in the open. He could see no difference in honey production. He has observed that when the hives are not shaded the bees go out earlier in the morning, while those in shaded hives would work better during the heat of the day. President Howe said that black bees and Caucasians need more shade. Mr. W. F. Marks arose to ask "Who has black bees? Does not Mr. Howe mean brown bees?" This brought out not a little discussion showing that there were two strains of black bees; viz., the little black bees and the larger brown bees.

Mr. C. B. Howard next discussed the question of whether we should retail extracted honey in liquid or granulated form. He had been selling granulated honey like lard and butter. Such a plan eliminates the cost of handling, and at the same time educates the trade to honey in that form. The discussion naturally drifted toward selling liquid honey in various forms. Irving Kenyon sells his in pails; Louis Wahl in milk-bottles, and he showed some very pretty honey of his production. He allows three cents for each pint bottle, and five cents for a quart bottle when returned.

At the evening session there was a lively discussion of the question-box—breeding queen-bees and breeding bees in general; best sections for the production of honey; best Italians to resist bee disease, and the color of Italians.

President Howe gave it as his opinion that the imported Italian bee may show only two yellow bands. He had been informed that there are very dark Italians in Italy—some of them even black.

On the question of whether comb and extracted honey could be produced profitably in the same hive, there was quite a difference of opinion. Some of the largest producers seemed to feel that it was not practicable, although it might be done.

Wednesday morning Mr. Greiner, who, up to this time, had taken no part in discussion, was asked to give his opinion on the proper location for an apiary. First, he said he would have a good honey location; second, good roads; third, a shady place in which to work. He could not always use an orchard, although he preferred it. Some locations out in the open, he said, have more swarming. One yard he had in dense shade gave him some of his biggest yields. Mr. Coggshall, one of the most extensive beekeepers in New York, said, "Locate anywhere, just so you do not crowd on other people." He found that clay land gives the best clover. The apiary should be well protected by undergrowth for a windbreak. At all his yards he has a building, and one key for the locks of all the buildings.

Mr. Geo. S. Demuth, of the Bureau of Entomology, next delivered an address that ought to be printed in full. We have quite a complete digest of it; and every beekeeper, especially if he intends to keep "more bees," should read it over carefully.

PROFITABLE AND UNPROFITABLE EXPENDITURE OF LABOR IN HONEY PRODUCTION.

One of the remarkable things one notices, he said, when visiting beekeepers is the vast difference in the amount of time and labor expended by different individuals in accomplishing similar results. It is not always the professional beekeeper who produces his crop with the minimum expenditure of time and labor, nor is it always the amateur who produces his crop with the maximum expenditure of time and labor.

There are men here who are operating a series of apiaries with probably a less expense than others are expending on a single apiary. A peculiar thing about this feature of beekeeping is the fact that it is not a phase of the business that can readily be taught at conventions nor through the journals, nor even by visiting the more efficient beekeeper. It seems rather to come from experience — not experience measured in years of routine work in the apiary, but the experience of the manager, the experience of the man who is not so covered up with the details of his business that he is unable to see their interrelation and relative importance.

To make the problem more difficult, the beekeeper is at once both manager and routine laborer; and one tendency is to become so engrossed with the routine work that ability as a business manager may be developed slowly. Fortunately, however, beekeeping calls forth such a variety of activities that it stimulates development in various directions. Beekeeping is a business of details; and while one may be overwhelmed with the multitude of details, another with double the number of colonies, and perhaps other business interests, somehow gets through the busy season and lives to tell about it.

The paradox that the one who has the most to do has the most time for extra work, holds in beekeeping as well as elsewhere. The usual trouble with the man who is overworked is that he hasn't enough to do to compel him to systematize his work. It may, therefore, sometimes be a kindness to overworked individuals to impose extra burdens upon them.

The greatest efficiency in beekeeping is not developed by operating a single apiary of one or two hundred colonies with no other business carried on in connection. He had in mind a beekeeper who was forced into greater efficiency by a series of promotions in other business. He has gradually increased the number of colonies operated; and during the same time has been compelled to decrease the amount of time spent in the apiaries. Years ago, with a single apiary and but little other work, he was a very much overworked individual; but now he is operating three apiaries of 60 to 100 colonies each, for comb honey, is otherwise employed, and several hundred miles away from the bees during 10½ to 11 months of the year.

Compared with some of you, this particular beekeeper is but half grown; but it required considerable external pressure to compel him to become more efficient as a beekeeper.

The beekeeper who uses his energies and ability at " half capacity " in order to be able to label himself a specialist is paying a high price for a fancy label.

The beekeeper with 100 or 200 colonies, who hesitates about keeping more bees, should by all means take up some other work in connection with beekeeping.

The motto, " Keep more bees," should stand as a monument to the memory of the remarkable man who so patiently and persistently taught it; and it would seem like sacrilege, he said, to change it in any way; but could we not put up in big letters, " Keep more bees," then write underneath in small letters, " but if you don't, get another job to be carried on in connection with beekeeping, and work at the other job most of the time "?

The election of officers resulted as follows: President, S. D. House; Vice-president, John T. Green; Secretary, Irving Kenyon.

ODE TO A HONEY-BEE

BY T. F. NORRIS

Dear bee, thou art a rover
When the meadows bloom with clover.
From bloom to bloom thou'rt going
Where the sought-for nectar's growing
Fearless of the rain and thunder,
Through the distant fields you wander:
Where the winding streamlets flow
Ever onward, still you go.

Onward still, thou blossom-rover,
Till the autumn flowers are over.
With too much courage for a bee,
Or any thing so small and free,
Through noontide's scorching ray,
Ever hastening on thy way,
On thy way on pinions fleet,
Still in search of hidden sweet.

Toil on, thou restless rover;
O'er many blossoms thou dost hover;
Merrily o'er each bloom bounding,
With your merry hum resounding,
Toiling while the day is closing,
Thence homeward to thy home reposing.
Is thy home a hive or tree?
Pray tell me, dear honey-bee.

Vanceburg, Ky., Dec. 17.

Heads of Grain from Different Fields

Moving Bees in Mid-winter

On Feb. 1, 1913, bees had a flight. It turned cold that night, and we had a snowstorm Feb. 11. I moved 40 colonies about 100 yards, and a few days afterward bees could fly again. I asked my man if he noticed any bees go back to the old place. He said, "Yes, they were all down at the old place for a few days, but always went back at night." That going back at night he was just guessing about. From what I have noticed in moving a colony that had been in ten days on account of bad weather, this fall, late, and the going back last winter, I am under the impression that a lot of flying bees are lost by cold-weather moving. I have some to move a short distance, but I am not pleased with this cold-weather moving, as a flying bee has no time to hunt a home when away from the cluster in cold weather. They simply perish. I have a neighbor who was compelled to move 30 colonies from one side of his house to the other a few days ago. I asked him if they went back. He said, "Yes, but they seemed to get back home to their new location again," and added that he could not notice that he lost any.

Galena, Kan., Dec. 8. J. P. BRUMFIELD.

[Your bees had not been confined long enough to move them only one hundred yards. A far better and safer way is to put them in the cellar and keep them there for two or three months. Then you can move them to another location; but even then some of the bees may be inclined to come back to their old stands. When bees are moved out of the cellar, and put back in the same location, though not on the same stands, they will mix more or less; but this does no harm. In moving bees in midwinter from one side of the house to the other, it is desirable to have the old location changed as much as possible; and the longer the bees can be confined to their hives before they fly again the better. They will go back, providing it does not turn cold toward evening too quickly, chilling them so they can not return if they would. If there is a period of a couple of weeks of bad weather from then on, these chilled bees will never get back; but if the cold spell lasts only two or three days, and then warms up so the bees can fly, these chilled bees, as soon as they warm up, will generally take wing and go home. This is not a crude guess, for we know whereof we speak.—ED.]

Best Time to Requeen

What is the best time to requeen in central Iowa? How is it best and easiest to find the old queen?

EDWARD WURTZEL.

[The best time to requeen will depend somewhat upon conditions. If there is European foul brood in a locality, and the bees are black, the sooner you do it the better. If you rear your own queens, a good time to requeen is during the swarming season. Cut out swarming-cells from the best colonies; put them into nuclei where they can hatch virgins; then allow them to mate. After they get to laying, kill the poorest of the queens in the full colonies, and put these young queens in their place. - If you buy your queens the best time to requeen is after July 1, when prices are at their very lowest. During July and August, queens can usually be bought at quite a reduction in price, providing a quantity is taken.

There is no best and easiest way to find the old queen. In the case of black bees it is sometimes advisable to run all the bees through perforated zinc and catch the queen on the metal after all the bees have gone through; but in the case of ordinary Italian and hybrid bees, or any bees that will be quiet on the combs, the best way is to look over the combs carefully one by one until she is found.—ED.]

Apiaries—Proximity of to Common Highway and Line Fences

Have you any knowledge of cases tried in this State to determine the distance the law requires bees to be set from a public or private highway? The reason I am inquiring is that a party is trying to force a private highway through the edge of my apiary. Should he be successful in securing the road, would I be obliged to move my bees? I have always used this yard for my bees.

Alamo, Mich., Nov. 29. BERT WILLIAMS.

[We have no knowledge of any cases tried in Michigan to determine the distance that bees may be kept from a common highway. As a matter of precaution, however, we always advise that bees be kept as far away from roadways as possible, and in the same way advise keeping a good distance away from a line fence, especially if there is pasturage on the other side, where horses or cows are allowed to pasture.

We do not know what the law would be in a case such as you describe; but we may say in a general way that you are liable for any damages that may take place. We would advise you to move your bees away from the proximity of the private roadway to be on the safe side—that is, providing you can do it, and we suppose you can. It is very much better in cases like this to avoid trouble in the first place rather than to run the danger of court proceedings.—ED.]

A Correction

Mr. Root:—I am in receipt of copies of the December 1st issue of GLEANINGS, and I wish to thank you very much for the kind words, also for ushering me to the front cover of your magazine. I wish to mention one error in the write-up. I note it reads that I am a son-in-law of Mr. H. F. Cary, which should be W. W. Cary, Jr. I think the following explanation will make clear how this came about. There was a senior and a junior Wm. Whiting Cary. Senior W. W. Cary was the man who worked with Langstroth and helped care for the first successful importation of Italian bees to Long Island, imported by Parsons. Mr. Parsons gave this Mr. Cary a supply of Italians when he returned home from his season's work in 1860. W. W. Cary, Sr., continued breeding Italian bees from that time on until W. W. Cary, Jr., took the business and added to it the vinegar business, which has developed very rapidly. Mr. H. F. Cary is the son of W. W. Cary, Jr., and he is my brother-in-law. He now devotes his entire time to the vinegar business, and W. W. Cary, Jr., spends his winters in Florida. You will note the bee business has been passed down from W. W. Cary, Sr., to W. W. Cary, Jr., H. F. Cary, and to me.

Lyonsville, Mass., Dec. 15. EARL M. NICHOLS.

Snow Does Little Damage if Entrances Face Direction the Wind is Blowing

During the snowstorm on Nov. 9 and 10, as mentioned p. 836, Dec. 1, some of our colonies were under snow to the depth of about four feet for some time. In mountainous countries, where men and beasts are occasionally caught in snowslides we know snow may be very porous, and air may pass through it quite freely; but we have all seen the result of a sudden change of weather when snow changes from a porous blanket to an air-tight covering—often in as short a time as one hour; and consequently I always look to all colonies facing any direction but east, which have no windbreak on the east. I have never found colonies with east entrances, and with no obstruction or windbreak in front of them, entirely difted shut. There is always a blow-hole formed by the warm breath of the bees. This blow-hole usually inclines at an angle of about 45 degrees, leading away from the entrance of the hive, and consequently drifting snow passes over it and does not drift into it or close it. If we have a windbreak in front of the entrance, snow will swirl and drift back, closing it.

Greenwich, Ohio, Dec. 9. R. J. WILILAMS.

Some Experiences with Queenless Colonies Gathering Pollen; Will Bees Gather Pollen without Queen or Eggs?

About the 10th of April a chicken caught a queen from one of my hives. I saw the chicken catch it, and thought it was then a good time for the bees to work on the pollen. On the 20th, ten days later, I opened the hive. Of course there were no eggs, but a good colony of bees for the time of the year. On the 10th I dequeened two other colonies. They also were examined on the 20th. I found no eggs in either hive, and I had cut out all queen-cells, which, of course, left them in the right condition for a trial on the pollen question. About the 23d the black-oak trees began to bloom, and they furnish more pollen than all other bloom combined in this country. They were in full bloom for over two weeks, and the queenless colonies gathered about the same amount of pollen as the other colonies. They all went at it with a rush, and kept it up during that time; but after that was over, Nos. 1 and 3 began to slack off on the pollen. No. 2, however, brought about as much as the other colonies.

I gave brood to each of the colonies for a month or more. I supplied each with brood of the same strain, and No. 2 did not let up on gathering pollen, but brought in about as much as those colonies with queens.

About six weeks after taking the queens I tried to introduce one to each hive. I failed on 1 and 2. I tried again and failed again. I then put a queen between the tops of the frames, and they were both accepted and are strong colonies now with hives full of honey and pollen.

There is a great difference in the strain of bees in gathering pollen. No. 2 had the most solid frames of pollen I ever saw. I swapped pollen for honey with other hives so as to equalize. These bees are hybrids, five or more times crossed up with Italian and brown German. They are just bees—that's all.

BROWN LEGHORNS STUNG.

I have White and Brown Leghorn chickens running in my bee-yard, and the bees will sting the Brown Leghorns, but they will not sting the white chickens at all. E. C. FRAZIER.

Central City, Ky.

More About that Peculiar Disease

You invite information, pp. 547, 548, Aug. 1, regarding a peculiar disease appearing in Colorado and California. I have noticed this trouble in this vicinity for the last two years, but have not thought much about it until this year, when it appeared in two out of five hives which I keep in the back yard. The young bees hatch all right, but crawl around for a while and finally get out in front, never to return. Also the old bees bite the cappings and carry out bees all the way from one with just a little color in his head to bees that are ready to hatch.

I examined some of the bees that were carried out, and caught some as they left the cells, and found that some hatched without wings. Others had a part of the cocoon so tightly stuck to them that it was impossible to remove it without killing the bee, and some seemed normal. All bees that were old enough were left alive and kicking outside.

Now, I don't think this is chilling, poisoning, or paralysis, as it doesn't correspond to the symptoms of these. I fed my bees for six weeks on the best of sugar syrup without the least change, and there was no honey in the hive and none outside to gather, so it couldn't be poisoning. There is no spraying of fruit-trees here either. The trouble commenced in May, and lasted three months, stopping suddenly. It weakened two colonies until I had to unite them, and exterminated another. It doesn't appear to be contagious, as no other colonies caught it. I hope to see more about it.

Corona, Cal., Nov. 12. DALE RYCRAFT.

Alfalfa Honey Varies According to Locality

Mr. Chadwick seems to think that honey-plants furnish the same grade of honey in all localities. My experience with sage and alfalfa is that they do not. When keeping bees near Bakersfield, Cal., a few years ago I had two apiaries just four miles apart. One was in the district known as the " Weed Patch," where the soil was very sandy and the water was from twelve to eighteen feet from the surface. The other was on the Bloomfield ranch, where water was close to the surface, soil heavy, and with much alkali. Ninety per cent of all the honey gathered in either district was alfalfa. The honey gathered in the Weed Patch, to quote an enthusiastic friend, was " White as milk, and sweet as a sweetheart's kisses." The honey gathered in the lowlands was amber. The taste of the two honeys was different, and the dark honey probably had a higher percentage of water, as it was much easier to throw it from the combs with the extractor. Inyo Co., Cal., on the east side of the Sierra Nevada, furnishes a water-white alfalfa honey, as does the country about Reno, Nev. In Imperial Co., Cal., and Yuma Co., Arizona, alfalfa honey is dark. It is no use saying that the dark honey has been mixed with honey from weeds, etc., gathered at the same time. Bees do not put different grades of honey in the same cell, and at my Bloomfield apiary I never saw as much as one cell of white honey; yet the bees got alfalfa honey, as thousands of them could be seen working on the blossoms of the great fields of that plant about them.

Yuma, Ariz. W. G. HEWES.

Honey a Cure for Erysipelas

I am going to tell of an incident that happened in our family last spring. My husband's uncle, who makes his home with us, was afflicted with erysipelas in his face so that it was swollen very much. Our physician advised us to get strained honey and apply by spreading on a soft cloth and covering the parts, removing every two or three hours, bathing the parts in warm water, and applying a fresh cloth prepared as before. This we did, and in a short time the erysipelas disappeared, and there has been no more trouble with it.

Our physician, in talking about it said, "I was called to attend a young lady having a bad case of erysipelas, and did every thing I could to relieve her, but with no success until I thought of strained honey. I spread some on a cloth and applied it to her face, which was so badly swollen that all the features were obliterated. On leaving I told them to keep the application on; and next morning, when I called, her eyes were partly open. We continued the honey until we had a complete cure.

" Some time after, I was called to Cleveland to attend a man who had been under another doctor's care. He had a trained nurse who thought that I was a cross-roads doctor who did not know much; and when I told her to put on the honey she openly smiled. But I told her to do what I said, as the man was in such a bad state that I was afraid I could not save him. However, after three days he was so much better that I left for home, telling them to keep me advised as to his condition. He was cured, so I feel that honey is a sure remedy for erysipelas."

Warren, Ohio. MRS. W. T. DARBY.

Our Homes

A. I. Root

Suffer little children, and forbid them not to come unto me, for of such is the kingdom of heaven.—MATT. 19:14.

Take heed that ye despise not one of these little ones; for I say unto you, that in heaven their angels do always behold the face of my Father which is in heaven.—MATT. 18:10.

By the way in which I have frequently spoken of Mrs. Root, in these Home papers, some of you might imagine she was without weaknesses like the rest of humanity; and if she imagined I was going to bring out some of her weaknesses right here in these Home papers before all the world I suspect she would "go for" me with a stool or chair or whatever else might come handy. But I am going to risk it at all events; and I am going to speak of two special weaknesses. First, she will not put up with being deprived of God's fresh air. If you shut her up in a close room with the windows fastened down, and tell her she has got to sleep there she will get "fighting mad." Perhaps that is a little exaggeration after all; but still I think it is not very far out of the way. If you ask her to go to prayer-meeting, and there are more than a hundred in one little room, with the doors and windows all shut, I am afraid she loses her religion in her indignation; and I must own up that I do not know but I stand pretty near her in that respect. But perhaps I have learned to put up with bad air a little more patiently than she does, and some of her children are just like her. They say they will not go, unless they can have good air to breathe. I hope that some of the good people who complain, if a window is opened just a little, near them, will read this and think about it. (If they would pray about it too I think they would do better yet.) Many a time have I been enjoying a good sermon and feeling the spiritual uplift because some nice fresh air was coming in from the window near by, when some old person would get up and shut the window clear down, when he could have taken a seat away from the draft, with even less trouble.

Another one of Mrs. Root's weaknesses that I am going to speak of just now is that she can not keep still when she hears a baby cry; and I do believe she has more sense and wisdom in knowing how to do the right thing to make a baby happy than anybody else in the world. Now, that is a pretty big claim, is it not? I do not know all the good women in the world, and so you will have to make allowance for my narrow vision in regard to motherly women who love babies. I told you some time ago of how a baby's plaintive cry roused Mrs. Root's motherly instincts; but for fear you did not all see it I will briefly go over it again. By some blunder Mrs. Root and I had no place to sleep except in an upper berth when coming home from Florida. I think she was a little car-sick, and feeling badly; and when told she would have to climb up into the "loft," through no fault of our own, she became a little contrary and said she would rather sit up all night. But she could *not* sit up all night, because there was no place to sit. At this juncture a good woman (thank God for good women, "the salt of the earth") suggested that her two children would gladly exchange their lower berth for the upper one; and, sure enough, it was just fun for them to climb up. By the time we began to feel happy, and were getting into our lower berth, somebody insisted on having the heat on in the steam-pipes; but the porter said we could not have a lower window open, for it was against the rules. Then Mrs. Root became cross again. She said she would not sleep in that hot place, without a breath of air, for all the money in the world. Come to think of it, however, I do not think she said that in just so many words. She said it only by action. About this time I began to be so worried and troubled that that little prayer of mine started up of itself—"Lord, help;" and right away after, Mrs. Root was startled by the plaintive cry of a baby. She asked our next neighbor about it, and was told that the young mother was so badly car-sick that she was vomiting, and a lot of women were trying to pacify the baby. They added that the sick mother had only an upper berth, and she was so sick she felt as if she could not climb up into it. Can you guess what Mrs. Root did? She fairly insisted that the poor mother with her baby should have our lower berth and we would climb "upstairs." But the mother protested against having old people like ourselves get away up there. But Mrs. Root vehemently declared she would much rather have an upper berth, and did not mind climbing up at all. There, now I have put my foot in it. Don't you see I started out to say that Mrs. Root had only *two* weaknesses—first, she always grumbled when she could not have plenty of fresh air; second, she would never lie down and go to sleep and get the rest needed when she heard a baby cry (and I honestly believe it does not make much difference whether the baby is any relation to her or not). And now I have blundered into a third weakness. She sometimes "tell fibs" when she is in a tight place. She actually told that young mother she much *preferred* an upper berth, when she had told the porter an hour before that she would rather sit up all night than to climb up there.

The above reminds me that one of our grandchildren—I guess it was a little girl—after her mother had given her a spanking, after she got through crying she said to her mother, "I lofs you still." Well, like the spanked little girl, I want to say of Mrs. Root that, even if she does get cross when she does not have good air, and bounces out of bed when she hears a baby cry, and even tells fibs (the kind of fibs I have described) to help a sick mother, like the little girl. "I lofs you still."*

Dear friends, the above is a rather long introduction; but it paves the way to the following, which I clip from the Youngstown *Telegram.* Just a minute right here. Do you know there are quite a few dailies that exchange with GLEANINGS? Yes, they are actually sending a paper every day for a whole year, and all they get in return is GLEANINGS twice a month. Is not this a clever world to live in? Well, below is what I read in the *Telegram:*

WELSHES AT FIRST THOUGHT BABY'S CRIES WERE THOSE OF A CAT.

The lusty cries of an eight-months-old baby probably saved its life early Sunday morning when it was found, muddy and bedraggled, in the front yard of 630 Hayman Street by Harvey H. Welsh, 709 Hayman Street. The police, after working an entire day to discover the parents or guardian of the child, are without a clue as to whom it might belong.

The infant was nearly dead from exposure when found. Had it ceased its cries it is likely that it would have lain in the yard until daybreak, and it is doubtful if it could have stood the ordeal.

According to the police the cries of the child were first heard about 3 A. M. by a sister of Mrs. Welsh. She awakened Mrs. Welsh and her husband, and the latter dressed to go out to make a search. But thinking the cries were those of a cat, Welsh took off his clothes and returned to bed.

The wails continued, and Mr. and Mrs. Welsh were again awakened by the sister who insisted that they make a thorough search. Welsh dressed himself a second time and went out. He found the infant not far away, about three feet from the sidewalk. It wore several dresses, which were water-soaked and covered with mud.

Welsh gathered the infant in his arms and took it home, and the two women set about to prepare food.

—*Courtesy Youngstown Telegram.*

They removed the wet clothing and bathed the child in warm water. The baby, which was a girl, drank the milk given her as though she were nearly starved. Her little body being warmed she fell asleep.

The police were at once notified, and took the baby to the City Hospital. Detective Moyer was detailed on the case Sunday morning, and worked the entire day without results. The child does not belong to the neighborhood in which it was found, and no one has reported to the police that a baby was missing.

The child was left purposely in the yard to be found, or to die from exposure, or may have been placed there by a drunken mother returning home from a night's revel, the police believe.

Along with the above account came the picture of that forsaken baby. Just think of it, will you? Some woman, some mother, left her own baby in a place like that; and when the police made every effort to find that mother they could get no trace of her. Of course, not all women are like Mrs. Root; but I think the greater part of them would have been called irresistibly by the cries of that poor little deserted waif. Imagine a mother, if you can, who would go away under the circumstances and leave her baby out in the cold and wet. She did not even take the pains to place it on a porch or under shelter. She probably knew it might rain, and so how could she perform an act like that? And after she went away did not her conscience trouble her? How could she sleep? how could she rest at all with that terrible burden resting on her soul, that she had thus in such a cowardly way deliberately left her own child?

In these latter days, not only are women taking up men's work, but they seem to be taking on men's vices. One of these dailies

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* Of course, the above about telling fibs is a pleasantry. Mrs. Root never tells fibs, and will not tell even little ones. She simply changed her mind when she heard that baby cry; and even if she did change her mind rather suddenly, and was rather vehement, I hope other women, especially every mother who reads this, will be ready to change their mind very quickly under like circumstances.

I forgot to add in the proper place that, when we got up in the loft, I pulled the ventilators wide open, and Mrs. Root slept nicely, even if she did spend quite a little time helping to care for the baby and its mother. **My little prayer was once more answered.**

I have mentioned has been telling about a woman pickpocket. We can imagine a man so lost to all sense of fairness and honesty as to be willing to appropriate the hard earnings of another man by picking his pocket; but is it possible that there are women also who are so lost to all sense of honor and justice? Let us now get back to that baby. We are compelled to admit that there are fathers—yes, a lot of them—who run away and leave their children. They generally leave them to burden and drag down the poor patient hard-working mother; but is it indeed true that there are women—mothers fashioned by God's hand—so lost and depraved that they would abandon their own children, and an eight-months-old babe at that?

Before we close I want you to turn over again and take a look at that baby. I have looked at it again and again, and that little puckered-up mouth, so plaintive in its distress, almost moves me to tears whenever I catch sight of the picture. As the little one lay there suffering with the cold and rain, in its baby mind it was wondering where the mother was; and it was wondering, too, where all the good people who had loved it and kissed it in time past had gone. It cried again and again for help.

We all know that babies must be kept warm. Whatever you do, do not let the little ones get chilled. Give the baby plenty to eat; and if out in the open air, protect it with the best, softest, and warmest clothing the world can afford. Jesus said, "The foxes have holes, and the birds of the air have nests; but the Son of man hath not where to lay his head." God has made ample provision for the birds and the beasts; but humanity has to be cared for—especially the first stages of humanity here in this world of ours. These same daily papers have been telling us of the appalling number of deaths of babies—little babies—and the whole world is up in arms to protect these little innocents. Not only are they to have better milk, but kind and wise nurses are sent out to instruct the mothers. God bless the nurses; and may he bless the Christian nation that is taking this matter in hand. Grown-up people are more or less to blame for their misfortunes and troubles; but babies are in no way responsible. The responsibility rests on the shoulders of the fathers and mothers—on your shoulders and mine. It rejoices my heart to think that my life-long companion accepts this responsibility. She very often becomes very tired, I know; but a baby's cry is a stronger appeal to her motherly heart than almost any thing else on earth. Let us as a people not only look out for better environment for the babies in the way of health, but let us think of their spiritual nature. The world is just now discussing how much environment has to do with helping the babies to become God-fearing, law-abiding people instead of criminals.

The police and everybody else were asking what could have possessed a mother to forget her motherly instincts so far as to go away and leave that pitiful baby there in the wet grass and weeds to die from exposure, for no one heard its plaintive cries. The police, after long experience, suggested an explanation, and the only possible explantation for such a state of affairs. It was the old, old story of strong drink; and I suppose we shall have to admit it is true that in these latter days women are getting to be slaves to strong drink as well as the men. We have had pitiful tales of men—or they were once men—who took the shoes from their poor babies' feet and pawned them to get drink. This woman sacrificed the baby entirely, and went away and left it because she loved drink more than she did her babe.

Let us now once more take a look at that plaintive picture and then repeat the words of our text: "Suffer little children, and forbid them not to come unto me, for of such is the kingdom of heaven."

LIFE OR DEATH—WHICH WILL YOU CHOOSE?

We are told the following was clipped from the *Youth's Companion:*

THE BOY AND HIS FATHER.

"And the father laid a kindly hand on the boy's shoulder, and said: 'Come with me, son. I want to show you something.' He led the way to his workroom in the attic. There were his carpenter-bench and his tools and his lathe; and in the corner was the dynamo that worked them all. The boy had seen them all many times.

"'What is it, father?' he asked.

"The father laid his hand upon the dynamo. 'Boy, by means of this a mysterious power becomes mine. We call it electricity, but no one knows what it is. We only know that, if we treat it in the right way, it will enable us to do wonderful things. It will work our mills and light our houses and our streets and run our cars. It will enable man to do more than any other power that has been discovered. But at the same time, if you treat it the wrong way, it will strike you dead.'

"'Yes, father, I know that,' said the boy.

"His father turned toward him with an earnestness the boy had never before seen in his face. 'There is another power, my boy, much like that in its results. There is the mysterious feeling that men have for women, and women have for men. Treat that right, and it will bless your life, and ennoble it. and make you ten times—yes, a hundred times—the man you ever could be without it. Nothing else on earth will do so much for you if you treat it right. But treat that feeling wrong, and it will curse you and blast your life and kill your soul!'

"For one moment father and son looked at each other square in the eye; then together they went downstairs in silence. In the hall below the boy put his hand on his father's arm and whispered: 'I know what you mean, father, and I know it's true.' "

I can say with that boy, "I know it is true." The boy spoke from a limited experience, prompted by the voice or conscience, while I speak from the standpoint of a man over 70. It is true in youth, it is true in middle age, and it is most *emphatically* true when a man gets to be threescore and ten.

Ye are of more value than many sparrows.—MATT. 10:31.

We clip the following from the *Press Bulletin* of the American Medical Association for October 25:

> THE ANIMAL VERSUS THE HUMAN BEING.
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> Inquiry was recently made of the Minnesota State Board of Health as to a certain family affected with tuberculosis. The family was large and the house small, so that such care could not be given to the afflicted as to prevent the infection of others. The father had means and could afford to care properly for those diseased, if compelled to do so. A State inspector was sent to investigate, and this is what he found. A well-to-do farmer, with a farm of 320 acres, worth $100 an acre or more; a breeder of horses, having at the time of inspection seven imported Percheron horses and a herd of about twenty-five horses in all; a breeder of registered hogs, his hogs being among the first in the State to be given the serum protective against hog cholera. This farmer has lived in ——— County for about thirty years. Sixteen years ago his first wife died of tuberculosis, leaving three children. He married again. His second wife had thirteen children. The family now consists of father, mother, and fourteen children. A daughter of the second wife, aged 15, died last August of tuberculosis. A son of the first wife, aged 19, has been ill with tuberculosis for at least two years. No precautions have been taken to prevent his infecting others. The mother, with one newly born child and another too young to walk, is responsible for the care of this family of fourteen living children. There is no medical care being given the son afflicted with tuberculosis. Apparently this farmer can appreciate the breeding of horses and the protection of hogs from hog cholera; but he can not appreciate the danger of tuberculosis or the need of protecting not only the members of his own family, but others also, from this disease. The annual loss, in Minnesota, caused by the death of wage-earners from tuberculosis, is about $12,000,000. The number of deaths annually from tuberculosis in Minnesota is about 2250. The estimated number of cases of tuberculosis in Minnesota at the present time is 10,000 or more. Is this human disease worthy of the same efforts for its extermination as is hog cholera or glanders?

APPLES AND OLIVE OIL.

We clip the following from the *Rural New-Yorker:*

> The latest "sure cure" for catarrh is living 90 days on apples and olive oil.

So far as apples are concerned, I am fully in accord. I do not know much about the olive oil, but very likely it might make a "balanced ration" with apples, something like the little bit of cheese that I use with my apple supper. Who will test the above and report?

FLYING-MACHINES UP TO DATE; 900 MILES IN 900 MINUTES.

As GLEANINGS was the first periodical on the face of the earth to give an eye-witness account of the Wright brothers' first flight to make the machine come back to its starting-point, it is no more than proper that GLEANINGS should occasionally notice the progress that is being made in navigating the air. The steps of progress are so rapid now, and as our daily newspapers and magazines are full of it, it would take too much space to give here an account of *all* that is being done. Just now, however, the world is startled by M. Pegoud, who not only "loops the loop," but flies quite a little distance with the machine upside down. Of course he has straps to hold him securely to his seat. At first the world was inclined to say his success was accidental—that he could not do it again; but he has done it again and *again*, and I think he says it is no very difficult trick. The whole thing is described, with some very good illustrations, in the *Independent* for Oct. 23. We give below the closing paragraph of the article:

> At the present time the cost of aeroplanes still ranges from $5000 to $10,000 per machine, which is too high for the average man; and the sportsman and enthusiast has an extremely safe craft in the water aeroplane—the airboat, which is essentially a boat with wings, and the hydro-aeroplane, which is an aeroplane with floats to enable it to land on water. Water-flying is much more safe than land-flying, because the water always presents a flat surface to start from and land on; and, in case of a spill, the aviator, who is dressed in a floating coat, just gets a drenching. A score of American sportsmen acquired airboats in the past summer and flew them continually, and made from 60 to 80 miles an hour while they flew them; and two of them actually flew from Chicago to Detroit, 900 miles, which they covered in 900 minutes, going through a succession of storms which no boat could have weathered; but there were no accidents, not even a drenching. The demonstration of the safety of water-flying was so conclusive that scores of other sportsmen were converted, and the four principal aeroplane constructors—the Wrights, of Dayton, Ohio; Curtiss, of Hammondsport, New York; Burgess, of Marblehead, Massachusetts, and Benoist, of St. Louis, Missouri, are working overtime turning out this sort of machine.
>
> New York City.

I am not prepared to say exactly who should have the credit for the water aeroplane, as it is called above; but I do know that the Wright brothers made experiments with a craft to skim over the water of the Miami River, that passes through Dayton, a good many years ago, and before any thing of the kind was mentioned in the papers. This I did not get from the Wright brothers themselves, but from one of their workmen. The Wright brothers certainly have the credit (and I guess it is acknowledged world-wide) of making the first heavier-than-air machine to rise up from the ground; and I am inclined to think they were the first in the world to experiment with hydro-aeroplanes. Somebody will probably cross the ocean very soon with such a craft. If they can go a mile a minute, and skim along in spite of wind and wave, there will be comparatively little difficulty in making the trip. We clip the following from the Cleveland *Plain Dealer:*

TESTS NEW AIR-CRAFT; ORVILLE WRIGHT SHOWS ONE PROPELLER MODEL AT DAYTON, OHIO.

DAYTON, Ohio, Oct. 6.—Orville Wright, himself driving to-day, tested out his latest aeroplane model in a series of successful flights.

The new model has but one propeller, which with the motor, seat, and drive, is in one unit in the center section, as compared with the former two-propeller machines, with blades in opposite directions. The new model "E" is made especially for exhibition purposes, and is capable of dismantling in short time.

Much of the machine is built of aluminum. In a test against time a flight was made, and the entire machine dismantled and loaded ready for shipment in twelve minutes. This model has been viewed by representatives of the International Club. Another test will be made Oct. 15.

High-pressure Gardening

THE DASHEEN AND SOMETHING ABOUT IRISH POTATOES, ALSO.

I have spoken several times of the difficulty of getting Irish potatoes suitable for planting here in Florida, say in October and November, and we had the same trouble this year. Of course, there are potatoes on the market, but only those recently harvested, and therefore no sign of a sprout started. Two years ago we tried keeping over the potatoes we grew, and dug in April; but the rats got into our cellar in our absence and ate them all; and this past summer, when we boxed them up secure from the rats, they all rotted. On that Brooksville trip through the "wilderness" in front of a lone dwelling I saw some beautiful sprouted potatoes on the grass in the yard. The owner explained that he kept them through the summer without any trouble by simply spreading them out on the barn floor; and since then I have met several people who kept them in a similar way so as to be all ready for planting when they returned from the North. Neighbor Ault, the man of the tall dasheens, is just now digging beautiful new potatoes, and has sent us a panful to mix with our "creamed" dasheens, and, I may also add, very nice new potatoes are on sale, where I sell my eggs, at 60 cts. a peck. We have been, for a month back, fitting our ground and planting Bliss Triumph potatoes as well as dasheens.

In regard to dasheens, see the following, which I have just clipped from the Jacksonville *Times-Union:*

It will not grow in soil suitable for cotton, but may be grown in soil suitable for potatoes. The importance of the dasheen to the Southerner lies particularly in the fact that it matures in the fall, whereas the main potato crop in the South matures in the spring, and in winter the Southern States have to obtain their potato supply from the North. If dasheens were grown and properly appreciated there would probably be little need for the South ever to buy northern-grown potatoes for food.

DISTRIBUTED FROM BROOKSVILLE.

The department's office of foreign seed and plant introduction, which has been the means of making the dasheen known in America, has received a number of letters like the following:

"On March 20, 1913, I received from your department some dasheens shipped by the Brooksville, Fla., station. I planted them March 24, on a loamy soil here in Monroe, La., two blocks west of Ouachita River. They soon came up and were large enough to begin eating the greens and stems, which our family soon became very fond of. I grew 40 hills. The plants grew up 5 feet high. Some of the plants made only 5 pounds of dasheens while others made as much as 10 pounds to the hill. I have not dug mine yet. In fact, I can leave them in the ground this winter here, as the ground does not freeze so much here. We have been eating the dasheens for some time, and like them better than Irish potatoes.

"I think you should add another name to them, and call them 'dasheen, or poor man's friend,' since any person with very limited space can plant a few hills in a garden or yard early in spring, and have nice fresh greens from early spring until frost, and then, best of all, come the tubers."

Let me say once more, where in the world can you find another plant (or vegetable) that produces a nourishing and delicious food just as soon as it is above ground, and also where every bit above ground and under the ground is edible at every stage of its growth, and that gives a *yield* like that mentioned in the clipping? At this date, Dec. 20, I have seen no 1914 seed catalogs. I am curious to know how many will have enterprise enough to offer dasheen tubers. They will need but little room in greenhouses, hot-beds, cold-frames, and window-boxes, until the big leaves begin to spread themselves. Our "amadumbes" from South Africa are growing finely, and so far look very much like the dasheen. As the beautiful leaves unfold I am watching them morning, noon, and night.

I find I omitted one important fact in regard to the dasheen at the Government station at Brooksville. While there was a fair yield of tubers on ground without manure or fertilizer, the yield was almost doubled by a generous application on several rows through the middle of the field. The amadumbe I have several times mentioned (from South Africa) is now making a splendid growth. A leaf just unrolling grew 5 inches (during a warm rain) in 24 hours. So far it looks almost exactly like our Trinidad dasheens. Of course I have not as yet tested them for food.

THE DASHEEN MAY YET SUPPLANT THE POTATO; NEW VEGETABLE MAY REVOLUTIONIZE OUR BILL OF FARE IN TIME.

I clip the following from the Jacksonville *Times-Union:*

A recent issue of the New York *Sun* had the following:

From Florida comes the report that the dasheen is finding much favor among the farmers of that State, and that it is becoming popular as table food, thanks to the experiments of the State Agricultural Department and to the government farmers at the Brooksville, Fla., plant-introduction field station and elsewhere.

The government's interest in the cultivation of the dasheen is due to its anxiety over the Irish or white potato, which has developed a tendency to contract various diseases, and which is admittedly becoming more uncertain in quality and quantity as the harvests go on.

In a recent number of the *Fruitman's Guide* a Florida correspondent writes that the successes of the Florida farmer in cultivating dasheen will make the Northern farmers sit up and take notice. He points with pride to the crop of a former Jerseyman named Porteus, who planted five acres to dasheen near Tampa and raised 35,000 pounds, or nearly 700 bushels, of the vegetable to the acre. Purtice, he says, expects to clear the snug sum of $5000 for his season's work, or a cash return of $1000 to the acre.

The correspondent admits that the price of dasheen (5 cents per pound) is high; but insists that its general cultivation will reduce prices.

Florida, he says, is particularly adapted to the raising of dasheen, as it will grow in the summer months on land that is not generally used for any other purpose. The land where the ex-Jerseyman's crop was raised was planted to celery on November 1 of last year, and produced $1400 to the acre; and on February 1 he planted Irish potatoes, realizing $500 to the acre. On June 1 he put in dasheen, which at $1000 per acre will give him a grand total of $2900 per acre for his year's work.

According to Robert A. Young, scientific assistant in Uncle Sam's office of foreign seeds and plants of the Agricultural Department, the dasheen is closely allied to the taros of Hawaii, China, and Polynesia, and is well adapted for culture in most lands of the South.

Each hill of dasheens contains one or two large spherical corms, growing to five pounds in weight, around which are developed numerous tubers. Both corms and tubers are similar to the potato in composition, but contain less water.

One plant will produce from four to ten pounds of tubers in good rich soil. Both corms and tubers have an agreeable nutty flavor and are easily digested.

Government analyses show that dasheen contains 27 2-3 per cent of carbohydrates (starches and sugar), and 3 per cent of protein, as against 18 per cent carbohydrates for the white potato and 2.2 per cent of protein.

The dasheen requires rich sandy soil, very moist, but well drained. It is not injured by an occasional flooding, and the hammock lands of Florida are therefore especially adapted to it.

The corms do not keep as well as the tubers, and it is considered advisable to utilize them first. The first-grade tubers weigh from four to five ounces, and are thought by many to be superior to the Irish potato.

It is believed that the dasheen will be a familiar vegetable in our markets before long.

Temperance

GOD'S KINGDOM COMING.

We clip the following from the *Farmer's Wife:*

SUFFRAGE IN ILLINOIS.

The advocacy that Illinois is going to the bad, and that women vote for politics instead of principle, was smashed to smithereens on November 4, when the women of that State got out and voted four to one in favor of no license in 25 different municipalities. In Jacksonville the total vote showed an excess of women's votes over those cast by men to the number of 39. In many of the towns the vote of women was almost equal to that of men.

Illinois is a crucial field, a field wherein women have not been wholly united in the desire for suffrage, but where it has been granted to them. The results of this election prove that when women have a duty to perform they measure well their moral responsibility, and go out and perform that duty to the best of their ability.

And now read this from the Wheeling *Advance:*

Oklahoma City, Sept. 25.—Not a newspaper in this State will carry a liquor advertisement in any form—it is the only State in the country with such a reputation.

Can any other State come up to this "high-water mark"?

GOD'S KINGDOM COMING DOWN IN TEXAS.

We clip the following from the *American Advance.* Please notice concluding sentence.

Texas' new anti-liquor shipment law, which has just gone into effect, prohibits the shipment of intoxicating liquors into any dry county, dry town, or even dry precinct, from any State, wet county, or wet precinct; and every man participating in the transportation of liquors, even from a wet portion of a city to a dry section of the same—shipper, carrier, agent, receiver—is made liable to prosecution under a penalty clause providing from one to three years in the penitentiary as a persuader against violation. No firm, corporation, or person is allowed to solicit or accept orders in or from dry territory by letter, circular, or other printed matter.

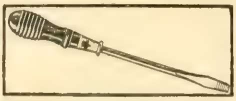
Now read the following from the *Union Signal:*

The attorney-general's department of Texas is reported to have handed down an opinion that newspapers are prohibited from carrying liquor advertisements in papers circulating in dry territory.

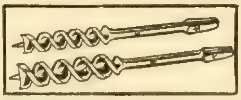
Our big city dailies will begin to think things look serious when told they can't send copies containing liquor advertisements into Texas.

Gleanings in Bee Culture

VOL. XLII. FEB. 1, 1914, NO. 3.



Screw Driver, No. K50/6
Price $0.40



Auger Bits, No. KS 8, Price
$0.30. No. KB/8, Price $0.60

Tools That You Need

For the thousand and one repairs around the place, for building the needed things with wood, you need Keen Kutter tools because they make easier work. And they cut true, hit true, and stay with their job. Be sure to buy

KEEN KUTTER

Tools

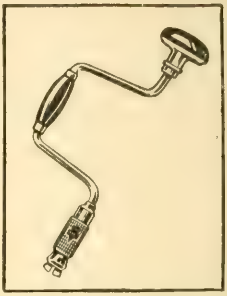
and be sure to look for the Keen Kutter trade mark. That means first-rate materials, honest workmanship, rigid shop inspection and the full worth of your money. It means, too, that if you aren't satisfied with the way any Keen Kutter tool acts, any Keen Kutter dealer is authorized to return your money, whether you bought the tool from him or not.

"The Recollection of Quality Remains Long After the Price is Forgotten."
—E. C. SIMMONS.

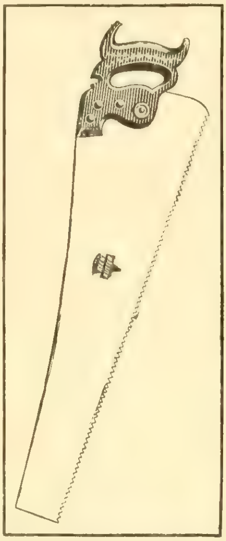
Trade Mark Registered.

If not at your dealer's, write us.

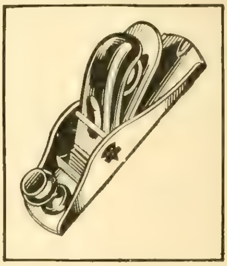
SIMMONS HARDWARE CO.
St. Louis New York Philadelphia
Toledo Minneapolis Sioux City Wichita



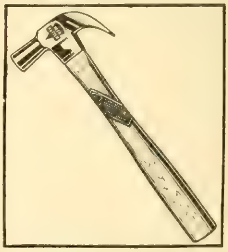
Brace, No. KP8
Price $1.50



Hand Saw, No. K88 23
Price $2.00

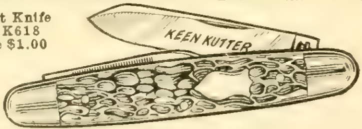


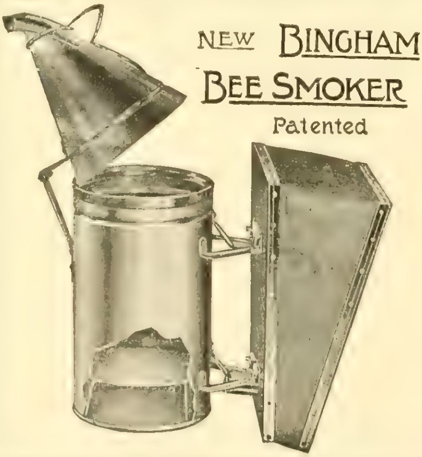
Block Plane, No. K110
Price $0.50



Hammer, No. K1½
Price $0.75

Pocket Knife
No. K618
Price $1.00





The New Bingham Bee Smoker

the all-important tool of the most extensive honey producers of the world. This illustration shows the remarkable steel fire-grate which such men as Mr. France, Mr. Rauchfuss, the Dadants, and others say is the best on the market. . The Smoke Engine grate has 381 holes for air and draft—equal to an opening two inches square. Buy the large sizes and be pleased. For sale at your dealers or direct.

Smoke Engine, 4-inch stove, wt. 1¾ lbs.,	$1.25
Doctor, 3½-inch stove, wt. 1⅝ lbs., ...	.85
Two larger sizes in copper, extra	.50
Conqueror, 3-inch stove, wt. 1½ lbs. . . .	.75
Little Wonder, 2½-inch stove, wt. 1 lb., . .	.50

Two largest sizes with hinged cover.

A. G. WOODMAN CO.
GRAND RAPIDS, MICH.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.
H. H. ROOT, Assistant Editor. E. R. ROOT, Editor. A. L. BOYDEN, Advertising Manager.
A. I. ROOT, Editor Home Department. J. T. CALVERT, Business Mgr.

VOL. XLII. FEBRUARY 1, 1914 NO. 3

Editorial

OHIO BEEKEEPERS, TAKE NOTICE.

WE wish to call the attention of Ohio beekeepers to the program (as given on page 119 of this issue) of the convention to be held at Athens, February 12 and 13. We know that no effort has been spared to make this meeting a great success. E. R. Root will be in Florida at that time, but H. H. Root expects to be present.

RAINS IN CALIFORNIA.

JUST as we go to press we have the following from Mr. Chadwick, our correspondent in California:

> We have just had a four-inch rain, and our prospects are much brightened in consequence. Mendleson says that we shall get the largest honey crop in years, the winter having been open and warm.

The morning papers to-day, Jan. 27, are telling of a terrible rainstorm yesterday in parts of Southern California—the worst ever known. We doubt whether so much water falling at once will do as much good as it would if it came more slowly; but certainly from the beekeepers' standpoint the outlook is the most promising of any season in recent years.

BEES AND POPPIES.

FOR the past few months there has appeared in the newspapers in various forms a story of bees becoming stupefied by working on poppy blossoms. The various items have included the names of different parties, and certain details have been so obviously exaggerated that we have thus far given the matter very little thought. During a recent conversation with A. H. Berno, of Mansfield, Ohio, he said that last season on several different occasions when his bees were bringing in honey rapidly he found them working on poppies; and each time, after about a day, he said he could see a large number of bees lying about on the ground near the poppies, unable to fly, which bees, however, would finally recover and generally get back to the hives by night. He cut down the poppies, and in about a week the bees were working again as usual.

Mr. Berno is the florist at the Ohio State Reformatory, and he has had considerable experience with bees as well as with flowers. If others of our readers have had opportunities for making similar observations we should be glad to hear from them.

PROF. A. J. COOK VINDICATED.

WHEN an honest and capable man tries to do his duty fairly and impartially, in a public office, especially if he does not favor some chronic office-seekers, he is pretty sure of inviting a fusilade of attacks. Prof. Cook, ever since he has taken the position of State Horticulturist of California, has had criticisms of one form and another hurled at him at different times. Matters finally came to a culmination recently, during which the opposition called a hearing before the Governor. Not a single charge was proven true. Prof. Cook was thoroughly vindicated on every point.

Our readers will be glad to know this, because Prof. Cook has been so well and so favorably known for so many years back by the entire beekeeping world.

LESS WATER USED IN MAKING HARD CANDY.

THE following note from C. H. Howard, Boston, Mass., came in too late for insertion elsewhere in this issue, and we thought best, therefore, to give it here as some might like to try the plan that he suggests in making candy for use late this winter.

> In your recipe for making hard candy you say, "Into a dish of hot water on the stove pour an equal amount of sugar, stirring constantly." I have made hard candy for bee-feeding for years, and do as you say, with this difference: I use one part water to six parts of sugar, and usually boil from five to ten minutes. I think you will find it quite a saving of time if you try this amount of water.

We tried using less water than the amount stated in the directions in our January 1st issue, but we had difficulty in getting all the sugar dissolved at once. If any sugar remains undissolved by the time boiling commences, the candy is sure to crystallize. It is true that it takes a little longer time to evaporate this extra amount of water, but it seemed to us the easier way. Possibly others might think differently. At any rate, we should be glad to have reports from any who may try both ways.

A COURSE IN APICULTURE AT THE IOWA STATE AGRICULTURAL COLLEGE.

IN keeping with many of the other progressive States, Iowa is to have this spring a course in beekeeping in connection with the State Agricultural College at Ames. This course is to be an eminently practical one, and the students are to be given daily lectures upon different phases of beekeeping, no text-book being used. In this the plan will be similar to the one carried on at some of the other institutions where beekeeping is taught. Briefly, the course will consist of one lecture and one laboratory period of three hours per week for half a year. Among other things will be taken up a study of the anatomy, physiology, development, and habits of the bee, including practice in general apiary methods, the handling of bees and their products, the races of bees, diseases, etc.

COVER PICTURE.

THE view shown on the cover gives a glimpse of some beautiful apples hanging in the trees just before picking time. No amount of careful blending of printer's ink can bring out the rich coloring, and we are glad that we made no attempt to imitate the natural tints. This picture, and the ones on pages 95 and 96 were taken last fall in the fifty-acre orchard of Van Rensselaer & Southam (see article by Mr. Van Rensselaer on page 94). Very close to this orchard is situated our Stone Hill yard, a part of which is shown on the cover of our July 15th issue. The spraying outfit used was also shown on the cover of our June 15th issue. Messrs. Van Rensselaer & Southam are enthusiastic over the value of the bees as pollinators, and they want even more bees, if possible, next season.

Is it at all strange that the most progressive and successful fruit-men do not need to be told of the value of bees as pollinators, nor of the bad effect on the fruit itself of spraying in full bloom?

BEES AND GRAPES.

DURING September and October we usually hear of one or more instances of trouble arising between beekeepers and grape-growers because of the supposed injury that the bees do to the grapes in biting or stinging holes through the skins of the grapes and sucking the juice. Of course, it has been shown many times that bees can not do this; that birds are the real culprits, after all, and that the bees merely suck the juice from the fruit that has burst because of being overripe, or that has been punctured by birds, and is, therefore, unmarketable. To get the grape-grower to believe this when he sees the bees with his own eyes working on the juice of the grape, is rather difficult.

There is some difference of opinion as to whether bees pollenize the blossoms of grapevines. Our Mr. Marchant says he has seen bees working on the blossoms in the South, and he believes that bees do cross-pollenize grapevines.

In our own apiary we have very large crops of grapes on the vines growing at each stand; but we confess that we ourselves have no absolute proof to offer one way or the other. We should be glad to hear from any of our readers who have such proof; for if it can be shown that the bees pollenize the blossoms of the grapes as they do of so many other fruits, this fact will go a long way toward overcoming the prejudice against the bees that exists in the minds of some of the grape-growers.

MISBRANDING AND ADULTERATION OF SPRAYING MIXTURES.

IN this special number on bees and fruit it may be pertinent to call attention to the fact that fruit-growers, besides having to be extremely careful as to the time for spraying, must also pay strict attention to the quality of the solution which they use for spraying. In these days of adulteration it is a favorite practice on the part of many sensational writers seeking for a little more notoriety to call every thing adulterated, even comb honey, as our readers know. However, the United States Department of Agriculture in a recent statement for the press has called attention to certain cases of adulteration and misbranding that the fruit-growers among our readers would do well to notice. Because of our lack of space we are unable to use the whole statement in question. The following is the introduction:

> GOVERNMENT WINS INSECTICIDE AND FUNGICIDE CASES.
>
> WASHINGTON, D. C.—The Government has recently secured judgments against a number of concerns for violations of the Insecticide Act. These involve the misbranding or adulteration of insect-powders, moth-balls, roach-exterminators, and various other insecticides and fungicides shipped in interstate commerce. Following is a résumé of each case:

We can not use the résumé of each case, nor is it necessary here to mention all of the cases listed. The following, however, being instances of adulteration or misbranding of preparations used for spraying will be of interest:

"Persian Insect Powder," shipped by Lewy Chemical Co., New York; "Orchard Brand Atomic Sulphur Fungicide," "Orchard Brand Arsenite Zinc," "Orchard Brand Atomic Sulphur Combined with Arsenate of Lead," "Bordeaux Arsenate of Lead Mixture," "Bordeaux Mixture," all shipped by Thomsen Chemical Co., Baltimore, Md.; "Kerosene Oil Emulsion," "Lime, Sulphur, and Salt," or "Horicum," "French Bordeaux Mixture," the last three shipped by Benjamin Hammond, Fishkill-on-Hudson, N. Y.; and "Lead Arsenate," shipped by Fred L. Lavanburg, New York.

A careful reading of the article by "A New England Veteran," page 91, will convince almost any one, we think, that spraying is often greatly overdone; or else it is done injudiciously by persons who are following unreliable directions, or, worse still, following no directions at all. If spraying is done in a haphazard manner, perhaps it is just as well that the solution used *be* adulterated.

Up-to-date fruit-growers and beekeepers will do well to pay especial attention to the emphatic statement by Prof. H. A. Surface, in the extract on page 93, copied from the *Practical Farmer*. We wish that all the farm papers would publish such a statement. It would have more weight than the same thing in a bee journal, because the bee journal is supposed to be prejudiced in favor of the bees.

"INVESTIGATIONS PERTAINING TO TEXAS BEEKEEPING."

THE above is the title of Bulletin No. 158, by Wilmon Newell, State Entomologist, and F. B. Paddock, Assistant Entomologist, and by William Harper Dean, formerly Assistant Entomologist at College Station, Texas. Seldom do we run across a bulletin from any station that contains more interesting and valuable matter on the subject of bees than does this one. Mr. Wilmon Newell, State Entomologist, is an enthusiastic beekeeper. Unfortunately, he is not in position where he can devote all his time and energies to the subject of bees; nevertheless, he and his assistant have given us some valuable experiments, all of which are recorded and given in the bulletin mentioned above.

DOES IT PAY TO DIVIDE IN RUNNING FOR COMB HONEY?

Wilmon Newell, unlike many experts, sees not only the scientific but the practical side of bee culture. In the two first pages of this bulletin he gives the results of some experiments regarding swarm control that are exceedingly valuable—valuable because he has gone after the work from the standpoint of the trained scientist. One of the problems he has tackled is, "Which is the more profitable—to prevent a colony from swarming, and thus conserve its strength, or divide it into two colonies early in the season and have both of them gather honey?" He admits that the consensus of opinion is in favor of the colony not divided. He selected a number of colonies—one set he did *not* divide, and the other set he divided, giving a part of them queen-cells and a part laying queens at the time of the division. The colonies that had the laying queens had the advantage. He says: "It seems a safe conclusion that, had the ones which were provided with ripe queen-cells at the time of division been provided with laying queens instead, their production would have been at least as great as the others. The conclusion is justified that the purchase of queens for these colonies, even at a price of one dollar each, would have been profitable, inasmuch as this would have increased the average production of these colonies by 30 lbs. of extracted honey." The average from colonies that were divided had 114 lbs. of surplus; that is to say, the combined surplus from the two after division was 114 lbs.

In the apiaries where the colonies were *not divided,* which either did not swarm or which were prevented from doing so, gave an average of 127 lbs. surplus per colony, or 13 lbs. more than the ones that were divided. "But," says Mr. Newell, "we obtained from divided colonies not only a surplus of 114 lbs., but a colony of bees," which he puts at the very low price of $3.00. Looking at it this way, and figuring the honey at 7 cents, the difference in favor of division was $2.09.

METHODS FOR CONTROLLING SWARMING.

With regard to the methods for preventing swarming, he found that increasing the size of the brood-chamber delayed it in some cases and stopped it in others altogether. Increasing the super room did no good. Shaking on foundation stopped the swarming and gave an average of 137 lbs. each. Colonies which did not swarm gave an average of 121 lbs. "One might be inclined," he says, "from a consideration of these figures, to suppose that the shaking treatment had actually increased the production. But such a conclusion would not be correct." The shaken colonies had the advantage in that they were stronger in the first place than the colonies that did not swarm.

THE LIFE HISTORY OF THE BEE MOTH.

Perhaps the most striking thing in this

bulletin is the life history and control of the bee moth, by F. B. Paddock. This is the most elaborate and complete treatment on the subject that we have ever seen; and while we believe that the author unduly magnifies the bee moth as a serious enemy (and it doubtless is such among the box-hive beekeepers of Texas), he has nevertheless given us a story that supplies many gaps in our knowledge of this pest. Its life history is illustrated by numerous fine half-tone engravings. It would be almost impossible to give a review of this magnificent piece of work, because it should be read entire in order to be understood. It is so well done that we shall beg the privilege of making it over into one of our booklets when the supply of this bulletin has been exhausted.

This treatise on bee moth is followed by a critical study of Texas beekeeping, by W. H. Dean. Some of the figures are interesting in showing the importance of the beekeeping industry in Texas. In spite of what Mr. Dean says to the contrary one would be surprised to find so large a number of beekeepers who keep black bees in old box hives. This fact will explain why the bee moth is really a serious enemy to some beekeepers in Texas. Mr. Dean summarizes his report as follows:

> The average production of honey, all grades, per colony in Texas for the season of 1911, as secured from reports of 2733 beekeepers, was 26 pounds. Were the production from box hives eliminated from this estimate, the average would be much higher in spite of adverse seasonal influences.
>
> Bulk comb honey ("chunk honey") is the chief production of the Texas apiary. It follows extracted honey and sections, the latter form being comparatively scarce.
>
> In the data expressing the views of Texas beekeepers as to whether apiculture is profitable as a side line rather than as a profession it is interesting to note that the most extensive beekeepers maintain that the industry is *unprofitable* unless conducted on a large scale, and that those who claim the industry is profitable *only* as a side line are almost invariably beekeepers who follow the calling on the corresponding scale.

DISTURBING BEES IN WINTER.

In the *American Bee Journal* for December is an article from G. M. Doolittle on this subject. In a general way he advises against it; but toward the latter part of his article he gives some testimony that goes to show that it may not be altogether an unmitigated evil. We quote:

> I have many times proven that such disadvantage was overbalanced by the advantage gained along other lines. Let me give one or two illustrations:
>
> When I had been keeping bees some two or three years a farmer living two miles distant advertised 27 colonies for sale in box hives at $5.00 each. This was considered a big price at the time, but, like any beginner, I was anxious for more bees, so I went to see them. He kindly consented to let me look them over, which I did by carefully tipping the hives on the benches they occupied, as they were wintering outdoors. I found that most of them were light in stores, and that there was only one colony in the lot that I considered worth the $5.00. I offered $5.00 for this one, which he took. I wrapped it in one of the sheets I had brought along, put it on the opposite side of the cutter seat which I occupied, turning it bottom side up, and drove home in the twilight of a cold evening in the fore part of January. I well remember how the bees roared, as the sleighing was poor, and how I inwardly censured myself for not leaving them where they were until spring, as "such a disturbance as this" would surely cause them to die. When they got quiet, about 10 o'clock that night, I carried them to the cellar where the rest of the bees were, took the sheet off, and set them in their place beside the others, still bottom side up, as in the early 70's we always wintered bees in box hives that way.
>
> No more of the farmer's bees were sold, and imagine my surprise to find on going there one day the last of April, that all but two of the 26 colonies left were dead, while the one I had disturbed "nigh unto death" was one of the best colonies I had. It gave a good swarm that year and stored 129 pounds of "box honey."
>
> After our great loss of bees during one winter in the latter 80's, a winter extremely cold and long drawn out, the claim was made that the bees "froze to death." I did not believe it, but claimed that no chance to fly during five months of "long confinement" was the cause. The argument "waxed so hot" that one afternoon the next winter, when the mercury stood at 12 degrees below zero, I took a colony of bees, and, with cover and bottom-board removed, suspended the hive a foot above the ground, leaving it thus for 36 hours, during which time the mercury got as low as 23 degrees below. This colony was then put on its old stand again, and came out in May fully equal to any of its fellows which had no disturbance above the usual winter's elements.
>
> In conclusion, allow me to say that, if there is any thing in this article that would seem to show that the disturbing of bees in winter does no harm, I protest in advance against the assumption that I advise such disturbance. I do not so advise except where some gain is expected.

We do not know but that we agree with Mr. Doolittle that the average person, perhaps, should avoid disturbing his bees in midwinter. It is a good deal like a case of spreading brood in the spring, and, we may say, spring feeding. But there are many things that the average beekeeper should not attempt, but which an expert can practice to advantage. We do not say that all experts under all conditions can disturb bees in their cellars and get an increase of 25 and even 50 per cent; but there are some who can do it. We have accomplished it two different seasons, and have succeeded nicely with one lot of bees in our cellars thus far.

Mr. Doolittle, in the second paragraph from the last, above quoted, shows that the one colony that was disturbed was the *only one* out of the whole lot during that severe winter that came out in good condition, while the *un*disturbed colonies nearly all died. Now, then, what an expert should do is to discover the conditions under which an increase can be secured in the cellar.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

L. W. CROVATT thinks, p. 27, that his experience would convince advocates of unpainted hives "that paint *is* valuable in the preservation of wood." Friend Crovatt, I think they agree with you that paint is good for the hive, but they think it isn't good for the bees.

I SUPPOSE Italians are not alike in the matter of capping. At any rate, my Italians have hardly tallied with what Bro. Doolittle says about their dark capping, p. 9. With a few exceptions there has hardly been a noticeable difference in the capping of my Italians and blacks or hybrids.

DRONE JUICE FOR UNITING.—In *Rhein. Bztg.* it is recommended to mash up drone brood, thin the juice with a little water, and then sprinkle bees with it to make them unite peaceably. [We should be afraid that, under some conditions, this would result in fearful robbing. Moreover, mashed-up brood of any kind is liable to cause stinging also. We certainly would not advise beginners to try it if they do not want to get into trouble.—ED.]

J. E. CRANE, if you mean that four-foot board to be used for the whole apiary, p. 879, it seems to me your record will be crowded. If you mean one for each colony it must take quite a lumber-pile. You say glue makes leaves of a book stick together. I've glue galore, and the leaves of my books are daubed with both glue and honey, yet it makes no serious trouble in the space of 50 years or so. How it might be as a permanent practice I can't say.

WILLIAM TANNER has my thanks for a package of genuine German lebkuchen made in Nuremberg. I'm sending you a share, Mr. Editor. In Germany these lebkuchen associate honey with Christmas in a way not known in this country. [The samples came duly to hand, and they are certainly very fine. It is to be regretted that in this country we do not have this German custom of eating this honey-cake lebkuchen during Christmas. The recipe for lebkuchen will be found on page 33 of our booklet of honey recipes.—ED.]

I'D LIKE to know what Mel Pritchard looks like. Is that he, p. 28? [Yes. His picture appears on pages 27, 28, 29, also on page 892 of our issue for Dec. 15. On page 888 appears a picture of our Mr. Marchant, who is now in Florida with our 300 colonies. Mr. Ray, another one of our apiarists, appears on page 891. Mr. Mel Pritchard makes smokers when he can not work with the bees. Mr. Ray goes out selling honey, and Mr. Marchant is taking care of our southern apiary. We always endeavor to keep our beemen busy the year round.—ED.]

IN Germany "early breeders" are disapproved, colonies that start brood-rearing later being considered more successful. It begins to look, p. 3, that you were reversing that rule at Medina. [Here is a case where locality would have a bearing early in the spring in Northern Ohio. In the cellar especially, we should say if brood-rearing can start by the first of January, and be maintained from then on till the bees are taken out of the cellar, it will mean stronger and better colonies. Of course, one has to guard against starvation. Unless the bees are supplied with candy or unsealed stores, they may not do much brood-rearing.—ED.]

LAYING WORKERS.—As reported in *Ill. Monatsblaetter,* Silvester Hirsch unqueened a normal colony, took away its unsealed brood, and gave it from time to time frames of *sealed brood.* During all this time, of course, the bees could rear no queen, neither did laying workers appear. Then he gave a comb with brood four or five days old, but nothing younger. The bees immediately started queen-cells, but destroyed them before maturity. The worker brood proceeded to maturity, and, shortly after the emergence of the young workers, eggs were found, two to ten in a cell—of course from laying workers. He thinks extra food produced laying workers. Whether they can always be explained in this way is a question.

I HAVE always believed that a worker never stings a queen, for if it did why should a queen live for hours when balled? One day last summer, while I held a queen in my hand a worker jumped upon it, and in a jiffy that queen was a dead queen. But I still think that a balled queen is rarely stung, if ever, perhaps because in the ball it is impossible for a worker to get into proper position to sting. [There have been so many reports that the bees have actually stung a queen to death inside of a ball, and we have had so many cases of it in our own yards, that we should say that death by suffocation was the exception and not the rule. It will be remembered when this matter came up years ago, we stated that we had repeatedly had queens stung in the thorax when pulled out of a ball of bees.—ED.]

Notes from Canada

J. L. BYER, Mt. Joy, Ont.

A mild winter so far, here in Ontario. At this date, Jan. 10, we have not yet had zero weather. But there is lots of time for real cold weather yet, as from now till Feb. 15 is the time we usually get our most severe snaps. Although the weather is mild, yet the air is not warm enough to stir the bees up any, and from all appearances they are wintering nicely so far.

* * *

DECEMBER BROOD-REARING A DOUBTFUL DESIRABILITY.

Brood-rearing is going on nicely in December, page 3, Jan. 1. May be all right for Medina, but none of it if we can avoid such a thing for us in this locality. If those bees could not be taken out of the cellar till some time late in April, as might happen here in Ontario, I feel that so much December brood-rearing would spell disaster. Although the editor tells of weak colonies going into the cellar and coming out strong in the spring, I must say I am very skeptical about such a thing being possible in ordinary practice, to say the least. If there is any thing I feel sure about, it is that brood-rearing, especially out of season, is very hard on the vitality of the bees raising said brood, and that is the reason I have always been opposed to the policy of early spring feeding for stimulative purposes.

* * *

OUTDOOR WINTERING MORE IN VOGUE IN ONTARIO.

Judging from what one reads in GLEANINGS lately, the indoor method of wintering seems to be popular around Medina, O. This seems strange to us chaps away north here in Ontario, as the present tendency is more toward outdoor wintering all the time, and I suppose the climate of Ohio is much milder than with us—indeed, from the very fact that we are so much further north we no doubt have much colder weather than they have down there. This fall I have received letters from a number of beekeepers who are north and east of me, and where cellar wintering is mostly practiced, the writers declaring their intention of trying the outdoor plan next season. While I have in every case advised caution in changing from a plan that has given fair satisfaction to that of a system in which they have had no experience, yet I believe that the outdoor plan can be safely followed in many localities where it is commonly thought to be unsafe to try to winter outdoors. We have 270 colonies wintering outside exactly 100 miles straight north of Toronto; and while this is but our second winter in that section, I am not worrying much as to the outcome.

* * *

BEES AND FRUIT.

This is an alluring combination that will have a tendency to make many city dwellers anxious to take a try at the "back to the land" policy. In a small way, fruit-growing goes nicely with commercial beekeeping; but unless competent help can be obtained, the specialist beekeeper is better to have just enough of the smaller fruit for his own use. They come in at the same time as the honey harvest; and as many of us could say from experience, we don't feel much like picking fruit for market when the bees are rushing us good and hard.

Late apples, pears, etc., come on at a time when they can be handled better by a beekeeper; but then the most of the commercial beekeepers do not have a large acreage of land to farm, so this line is out of the question. However, "bees and fruit" appeals strongly to this scribbler, and some day I hope to be able to settle down with one apiary and have the time and pleasure of reveling among all the choicest kinds of fruits that our climate will stand for. This is one of my dreams. Whether I shall ever be in position to realize its fulfillment or not is another question.

* * *

BOATS FOR TRAVELING TO BEE-YARDS.

What Mr. Scholl has to say in the Dec. 15th issue about Grant Anderson, of Texas, simply reaffirms what I stated some time ago on the subject of motor boats. Without a doubt, if I were starting in beekeeping again, and could find some locality suitable for honey production that had a navigable stream running through the country, that is the place I would choose to establish a series of out-apiaries. As mentioned before, we have a gasoline-launch at the yard north of Toronto, 100 miles, and it is certainly the ideal way to get around nicely and cheaply. Unfortunately the river is not navigable far enough for us to put any more apiaries on its banks; but the boat has demonstrated its usefulness along the lines indicated by Mr. Scholl. No tire troubles annoy us, and no bad roads stop you at any time in the season when working with the bees. Then again, the launch is not so expensive to buy or maintain as is an automobile. But I am sorry to say we have few locations around us with the necessary navigable waters, so I shall have to use the means of traveling at my command, and be satisfied.

* * *

FIGHTING AMONG BEES OF THE SAME COLONY.

A. C. Miller is, in my opinion, quite a keen observer. I say this in all sincerity. In just the same spirit, I can not help expressing the opinion that he sometimes makes claims to things as being facts when common practice seems to say there is nothing in his contentions. Writing in the *American Bee Journal* on the theme of queen introduction, odor, etc., he says that, when some colonies have combs with adhering bees taken from them, if these combs with the bees adhering are stood outside the hive for ten minutes or so, against trees, buildings, etc., when returned to the hive again there will be violent fighting among the lot united again, so that a quarter or more of the colony will be destroyed. Now, I don't pretend to be much of an observer; but I don't believe this can be possible and not be noticed by men handling hundreds of colonies for years. In some old systems we used to have of finding queens in populous colonies for purposes of dividing for making increase, etc., often have we had the combs separated for much longer than ten minutes, and never once can I recall seeing a " scrap " such as Mr. Miller refers to. Of course, friend Miller says " some " colonies, so perhaps he has something out of the ordinary. But at present I am inclined to think he has stated very emphatically something that will be hard to prove to be correct in actual practice.

* * *

BROOD-REARING IN SEPTEMBER AND OCTOBER.

" Only young queens, thirty days, or younger, will lay during the months of September and October in the Northern States," p. 777, Nov. 1. Isn't that putting it a little strong? Any way, if it is true of the Northern States, it is not the case in Ontario, still further north. At the Cashel yard I had 16 colonies in single-walled hives—increase made in July, all queens being of that month's rearing. They were left very late—too late, in fact, before being transferred to double-walled hives. October 29 they were lifted into the winter hives, each comb handled singly. Fourteen of the colonies had brood hatching in two frames, while two had three frames each. Of course the frames were not filled with brood, as the colonies had been fed heavily for winter. A few of the colonies had too much space with no honey, to suit me; and when brood was hatched they were given some more winter stores. In no case did I observe unsealed larvæ; but as I handled the frames rather rapidly I may have overlooked any if it was present. But the comparatively large amount of hatching brood was *prima facie evidence* that these queens had been laying all through the first week of October, and they were at least three months old.

* * *

BEES GETTING INTO THE WRONG HIVES.

That bees in an apiary mix up a great deal is a well-known fact; but it is only when unusual conditions prevail that I have a chance to see how much mixing is really done, and to get an idea of how any disease that might be carried by bees would soon spread all through an entire apiary. At the Cashel apiary the bees are nearly all Carniolan and their crosses, only a very few pure Italians being in the yard. In the row furthest west, which contains about 25 colonies, there is one hive of pure golden Italians, the workers being about as solid yellow as any I have ever seen. It is needless to say these bees are very conspicuous when mixed with other colonies of dark bees, and I was much surprised during the past season to see how these goldens have mixed up with their neighbors. For at least 30 feet on each side of the hive they come from, golden bees may be found in all colonies; and while some are present in the row back of the one they are in, not nearly as many show up as in the hives in the same row. On one side of this hive its neighbor *hive* is exactly the same in color, and I should judge that about one quarter of the inmates are golden. On the opposite side of the hive the next neighbor is of a different color, and very few goldens are mixed with them. Still further away on the same side as the different-colored hive, the next one is of the same color as the one with golden bees, and in this hive the yellow fellows show up very plentifully. This would seem to show that the young bees are attracted by the same-colored hive, as they certainly have not gone into the dark hives near them to any great extent. The colony of goldens does not seem to have so many dark bees, so they have not gained any by their indiscriminate mixing with their neighbors, and it looks as though they are not as good home-finders as the dark bees. I remember G. B. Howe telling me that there was always a much greater loss in mating among Italians than with the darker races; and from my experience of the past few years I am ready to endorse that idea, as I continually find a much greater loss among Italians in cases of supersedure, etc., than is the case with the Carniolans and other dark bees.

Beekeeping in California

P. C. Chadwick, Redlands, Cal.

SELLING HONEY THE SAME WAY THAT ORANGES ARE SOLD.

This will not reach its readers until after the meeting on market at Los Angeles is past history, and I have not felt that it was my business to attend the meeting, as I am not on the committee; but I have thought many times, and still think, the only logical way to handle this marketing business would be on the lines on which the orange business is handled. This plan could be followed out successfully if properly managed. Not only would the beekeeper be saved the profits of a middleman or two, but the buyer would get the honey at a figure that would let it reach the retailer and ultimately the consumer at a reasonable figure. The orange-marketing system as followed in California to-day is one of the most sane and satisfactory of any system of marketing of an agricultural product. I might profitably give a synopsis of the workings of the California orange pool, and explain the advantages.

There are really several pools in operation at some of the packing-houses at the same time. For instance, we first have the Christmas pool. This includes all of the fruit picked and shipped for the Christmas trade, and closes about Dec. 10 as a rule. All growers who put fruit in the pool receive the same for their fruit of the grade they furnish. Then there is the season's pools, and pools of various lengths during the season. It is the season's pool of which I will speak principally, for it will serve my purpose best in comparison. The holiday fruit is, as a rule, not included in the season's pool, but all of the remainder of the shipping season is included which runs over a period for the navels from Jan. 1st to near the first of June, varying a little according to the season. The fruit is hauled into the packing-houses and weighed, set aside, and the boxes marked. When they are ready to pass over the grader, an account is kept of the amount of the different grades as well as the culls. These records are compiled from day to day as the fruit of the individual comes in until all of his fruit has passed over the grader. At the end of this period the entire amount is added, so many of such and such a grade, and so many culls. The great advantage in the season's pool is that the grower receives for his fruit exactly what every one else in the pool receives, or an average for the entire season. If the market happens to be bad in New York or Chicago for a week or so, and the price runs down at those points, the grower need have no fear of his fruit being sold cheap on that market, for after his fruit is packed it loses its identity, and no one knows or cares where it goes, and the result is that no one man gets all of the high prices nor all of the low, but the average for the season is figured on the entire amount, as so much per box, and the grower gets the average on the number of boxes he furnished for the season. When the fruit is packed the packers will advance a certain amount on the fruit shipped.

This plan could be followed in handling our honey without any great outlay of capital. Honey in the warehouse, covered with insurance, is considered gilt-edge security by our banks. There could be a central selling agency from which all of this business could be handled, and a pool agreement signed for the season. When I had, say, 50 or 100 cases of honey stored I could take a warehouse receipt for it, get it insured, and forward it to headquarters; the manager could go direct to the bank, present the receipt and borrow on it, which in turn could be mailed to me in the form of a draft or check. This, at the end of the season, would be deducted from my returns for the season. An inspector could be put on the road to travel and check up the amount of each producer of the grade his honey would be classed under. If, for instance, there were ten beekeepers in Redlands who had honey stored, it could be inspected, graded, and reported to the selling agency as to the amount of the different grades. The selling agency could in turn sell a car of a certain grade and order it loaded and forwarded to a certain point. The beekeeper always needs money *right away*, and in this way could be satisfied, and yet help to hold the crop directly in the hands of our own agency. This would eliminate also the habit of buyers traveling through the country, paying a difference in prices ranging as high as two cents for the same grade of honey in the same locality from different producers.

I know this could be done if the beekeepers were ready to back the agency, and would put the honey market in the hands of the beekeepers instead of allowing the buyers to place arbitrary prices on our crops.

I have written something on this line previously, but desired to enter a little more into details at this time.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

IS THE SUPPLY LIKELY TO BECOME GREATER THAN THE DEMAND?

Boulder County produced over three hundred thousand pounds of honey the past season—that is, ten carloads, and all comb honey. One of the smallest counties in Colorado produced twice the comb honey that a city like St. Louis can consume in a year. Forty beekeepers produced all the comb honey that two million people eat. There is something wrong, and conditions must be changed, or we shall see worse ahead in honey-marketing. When a State like Colorado produces enough comb honey to supply twenty cities like Kansas City with their supply, consumable production and overproduction are drawn on pretty close lines. Western beemen must shortly bestir themselves in the line of educating to honey consumption. They are now paying heavily for their blindness to the narrowness of the market for comb honey. A bumper crop will put us in bad shape every year it comes.

* * *

HEAVY SNOWFALL IN COLORADO.

Northern Colorado has had the heaviest snowfall in the writer's seventeen years' residence in the State. All together more than 40 inches of snow fell, completely covering all hives. Concern for the safety of the bees was immediately felt by the beekeepers, as the snow was very heavy and wet. Some began at once to shovel out the hives, opening the entrances by digging a trench along in front of the rows of hives. Others, through lack of experience, shoveled out the hives and set them on top of the snow. A large proportion of the beemen, however, left their colonies covered up, as it was found that the warmth of the clusters had melted the snow away from the four sides fully eight inches. Fear, however, was felt that, when the snow began to melt, it would form a slush at the entrance, and freeze at night, closing the entrance and smothering the bees. The writer shoveled his hives out by throwing the snow back over the tops of the hives, leaving a trench clear to the ground along in front of the entrances. In this way the hives have the protection of the snow on the remaining three sides and the top. The entrances can be watched, and any danger of freezing quickly remedied. However, we have had several warm days which have melted the snow close to the entrances nearly all away, so that danger is now practically past.

* * *

ALFALFA PROSPECTS FOR THE COMING SEASON.

The precipitation for 1913 was nearly 19 inches, or 4 inches above normal. This was caused by the big snow late in November and early in December. Abundant water for irrigation is assured, and we hope the present good prospects will continue.

Alfalfa is our main dependence for honey. The fall rains put all the clovers in prime condition, and the heavy snow has protected the clover since winter came. The ground is not yet frozen, January 3, and it is not probable that the snow will be gone for another month. Alfalfa is injured more by winter and spring freezing than in any other way. The snow so far has prevented winter-killing, and the usual winter pasturing has not been done. The late spring freezes are the most serious injury that can come to the alfalfa; but these will be less destructive as the hardier varieties are more generally grown. It has been demonstrated that the deep-green alfalfa will stand much more freezing without injury than the light-green varieties. With the selection of better varieties, and their more general cultivation, we may expect more uniform crops of alfalfa honey every year.

The varieties of alfalfa that the beekeepers and farmers may well enthuse over are the Grimm and Baltic varieties. They have proven superior in hardiness, tonnage, and seed production. The southern varieties which originally were introduced into South America from Spain, and then brought north, make up the bulk of our commercial varieties now grown.

There is another important characteristic of the Grimm and Baltic varieties: They begin blooming before getting full growth. Fully ten days to two weeks of honey-gathering is provided for the bees before the alfalfa is ready at the earliest to cut. It is reasonable to suppose that varieties heavier in seed production are more valuable for the honey-bee, and this is another point where the northern varieties excel.

May the time soon come, as it undoubtedly will, when the hardiest of the northern varieties will be universally grown. As selection goes on, it will not be long before the hardiest varieties will be still further improved.

Conversations with Doolittle

At Borodino, New York.

CONTRACTION OF THE BROOD-NEST.

"In an old paper I read that much more honey can be obtained when the brood-nest is contracted than where the bees are allowed to have their whole brood-nest to work in as they please. If contraction is profitable, I want to make my dummies this winter."

Much depends upon what contraction is used for, and when it is used. The advocates of an eight-frame Langstroth hive use this size of hive for the purpose of securing an early rush of bees into the sections. They consider this the best way of getting a larger yield of section honey from white clover and basswood, as with this small hive the bees have little chance to store any of this honey in the brood-combs where very prolific queens are used, the brood from such a queen (and the necessary pollen needed for this brood) keeping the combs of the brood-chamber filled so that, where any honey of any amount is stored, such must go into the sections.

Some of our most successful apiarists of the past have claimed that a hive, even smaller than the eight-frame L. hive, gives still better results, and so have used dummies to take the place of one or two of the outside frames, thus using a six or seven frame brood-nest. They take these dummies out after the white-honey flow so that the bees can fill the frames, which now take the place of the dummies, with fall or dark honey for their winter stores. However, such contraction, where a colony has a good queen, is liable to bring on swarming; and when the fever is once contracted it is hard to control, the prospects for a good yield of honey often fading away through the continued efforts to swarm, unless the colony is shaken or some other manipulation used, either to draw off a part or all of the working force from their brood, or take a part of the brood away.

On the other hand, with an ordinary or poor queen a gain can be made at the commencement of the white-honey flow by using a dummy for every frame not occupied wholly or in part with brood. Otherwise the combs not having brood in them will be filled with honey, the queen still further crowded down, resulting, as a rule, with little or no honey in the sections.

The advocates of a ten-frame Langstroth or larger hive are quite sure that all contraction of the brood-chamber can only result in a smaller crop of section honey, reasoning that, according to their views and experience, any contraction is a most unwise course to pursue. In the first place they claim that we need to raise all the bees possible before the opening of the main harvest; that we must have an abundance of these workers or the harvest will be in vain, and to rear these workers there must be plenty of available cells. Second: In a hive we need all of the cells which a good queen will keep full of brood, and enough other cells for the storing of pollen and the needed daily allowance of honey that is necessary for an abundant supply to stimulate the whole household to its fullest degree. Then, when the coming harvest finds these combs all filled with brood, pollen, and honey, there is nothing to be gained in taking out some of these combs and putting in dummies; for if the brood-nest is full when the honey comes, the surplus must go into the sections.

Then there are others using large hives who claim, where the season is poor up to within a week or so of the expected harvest, thus allowing several of the outside combs to be empty of any thing, that the best means of getting the bees into the sections, with the first flow of white honey, is to feed an inferior honey until these empty combs are filled the same as they would be had the season been good, thereby placing them in a better condition than would be possible by using dummies.

Then contraction is practiced and advocated by some of our most practical beekeepers using a ten-frame L. hive, which is, the hiving of the large swarms sent out from these large hives on six or seven frames, using dummies to fill out the rest of the hive; and in a locality where the surplus white honey is gathered in a short period of from two to four weeks, this is generally a profitable mode of procedure. Especially is this the case where the flow from white clover and basswood is followed by a dearth of honey for a month or so before the flow from buckwheat or fall flowers begins. Under such conditions it often happens that one of these large colonies will get profitably at work in one, two, and sometimes three supers of sections, when, all at once, out will come a large swarm. If they are returned, more likely than not the bees will keep on attempting to swarm till the harvest is over, resulting in scarcely a section of marketable honey. By hiving this large swarm in a contracted hive on the old stand, transferring the supers to the newly hived

Continued on page 112.

General Correspondence

HELP! WHOLESALE SPRAYING OF BLOSSOMS CAUSING WIDESPREAD DISASTER IN EASTERN MASSACHUSETTS

BY A NEW ENGLAND VETERAN

It was with great pleasure and satisfaction that the writer read of the forthcoming "bee and fruit" number of GLEANINGS—not only from the anticipation of the enjoyment of reading something good—we have learned to expect that—but there comes the belief that the powerful influence of this widely read magazine may relieve the present situation in Eastern Massachusetts which has already gone far to destroy the beekeeping industry and interest of Essex, and, to a considerable extent, of other counties. That the matter is of vital and immediate importance to the gardener and horticulturist is obvious.

In the matter of disease, while realizing fully the seriousness and the difficulties which beset both inspector and owner, the writer is optimistic, and from experience believes that in time it may not only be controlled, but, by eliminating the careless and ignorant beekeeper, raise the gentle craft to a higher and more satisfactory plane.

For some thirty years bees have been to me at first a study and recreation, then my occupation, and have brought very satisfactory returns.

Although surrounded by salt meadows and hard-wood forest-land, the fact that we are in the "apple belt," and that our farms are well tilled, has made the flow of nectar sufficient to give reasonable profits, and the aroma and flavor of our honey is such that there is no difficulty in selling locally all we can produce. In my home yard a sale of 25 swarms and a trifle over half a ton of comb honey has been a fair summer's work; but it is neither unfair nor exaggerated to say that, for several years, the authorities have taxed my bees in April and destroyed them in May. My crop last year was 42 lbs. of honey—no swarms; and after heavy feeding, and the purchase of many queens, the apiary is reduced in value one half below spring count and appraisal.

With the advent of the gypsy and browntail moths there came the covering of the face of nature with, first, Paris green, of which two-edged-tool people had a wholesome and well-grounded fear; but later, with the arsenate of lead, of which they seem to have no fear at all; probably because, although it is quite as dangerous, and in some ways even more deadly, it was free from the evil reputation of Paris green, and was to most people a new substance—merely an "insecticide." It now sells at five cents a pound, and is to be found in the barns and sheds of most people who own trees or cultivate gardens.

Frankly admitting, as I do, the absolute necessity of its use, it is still a good thing to remember that it is a very powerful cumulative metallic poison, but very imperfectly soluble in the water with which it is applied; and, once exposed, is practically indestructible as a poison, although it may undergo some unimportant chemical changes by oxidation. Its value is in its ability to kill!

Let me be plainly understood that the beekeeper is, or should be, the first to acknowledge that, where these pests have appeared in any considerable number, the only course is to spray; but unless done at the proper time, and intelligently, it will defeat its own purpose. In this I find the men at the head, "the men higher up," are entirely with me. The ignorant employer, the farmer who does not know what he is doing, or, worse yet, does not care, or who is working on the absurd theory that filling the blossom with poison will kill the codling moth, not knowing that this moth takes no food of any kind, are the ones who have practically destroyed beekeeping and the wild bees in this locality.

You may have more patience to listen to my sermon if I set down here something of the damage done last spring to the bees under my personal care and observation, other than my own.

One yard of ten colonies in excellent condition, just beginning work in the supers, reduced by the second week in July to two nuclei. These were inspected, and pronounced free from disease. They had during the summer a loss of thirteen queens. Neither care nor expense was spared in the effort to save them.

Another apiary of six strong colonies was reduced to five weak; no swarms nor harvest. Two small apiaries were entirely wiped out. A market gardener, reduced from five to two; an apiary of three reduced to one nucleus. A yard of five reduced to two, and here every thing was done to save them, expense not being considered. A yard of seven was cut to three, this being an especially interesting case, as they developed two mild cases of European foul brood, giving positive evidence that a case of foul brood properly treated is of less injury than "spraying in bloom." This list could be extended, covering my work in both Essex and Norfolk counties. Of all the bees under my care or advice, only two lots did any satisfactory work. One colony was kept in a cucumber-house until the spraying in bloom had passed, returned a very handsome profit, and gave two swarms which went into the winter nearly as strong as the parent colony. Another yard of four, on a large estate where the spraying was controlled, and both bees and fruit protected, increased to six and gave some 200 lbs. of fancy comb honey. Under normal conditions this is a good locality, and not greatly troubled by disease.

To consider this question fairly and from all sides, one should bear in mind that the cutting out and killing of most of the willows under the belief that they promote the increase of the gypsy moth has deprived the bees of their early pollen; and hence, unless artificial pollen or pollen substitutes are supplied, the bees do not build up early enough to get the apple-bloom honey into the supers. This works out as of much greater importance than one would think. Also the cutting and burning of all roadside shrubs and bushes to destroy the moths supposed to be distributed by automobiles takes away in the aggregate a large amount of nectar, miles of elderberry, sumac, goldenrod, asters, etc.

The filling of a "ripe" apple-blossom with a solution of arsenic may not be the most healthful treatment for the blossom; but I am a beekeeper, and will not attempt to discuss botanical matters.

To say nothing of the money loss, it is not pleasant to see the yard covered with little bunches of bees quivering in the agony of arsenical poison, for arsenate of lead is "slow and sure," and the torture may continue for hours. A neighbor came in haste to ask what was the matter, for his onion-bed was, as he expressed it, "covered" with dead and dying bees.

The loss is not by the beekeeper alone, but the entire community is damaged, as shown by the fact that a large strawberry-field a short half-mile from my yard failed to fruit, although blossoming freely. The owner, an expert at the business, declares that, as my bees were practically the only ones available, their destruction caused his loss, which he estimates at $200, and it was to him a very serious matter.

Many who have enjoyed cultivating gardens are giving them up, as they depend on the bee for their early cucumbers and squash. The practical extermination of the bumblebee has been the chief factor in raising the price of red clover from 12½ to 45 cents per lb., and farmers no longer buy. Surely the loss of this valuable forage plant is not to be ignored. In spraying, especially with an engine of five to ten horse power (town machine), and in reaching tall elms and other shade trees, a wide area is covered, both around and beneath the tree; therefore much clover, both white and red, is filled, as the blossom is well adapted to receive and hold the poison. In this case the nectar serves to carry the poison; but my observation and experience convince me that the chief damage is by pollen, which soaks up and retains the arsenic; hence the slow building-up of a poisoned colony. The nitrogeneous food as stored up in the cells kills both old and young.

Of this very serious aspect of the case I have observations and experiments, but will not take space to give them here. A thing difficult to prove is that queens receive poison directly from the honey-sac of the worker, either as food or drink; but I am convinced the very great mortality among queens following spraying in bloom can best be explained that way.

Do not think the writer wishes to minimize the danger or damage of the moth pest. Eight wood lots lying in four towns, and all, so far as any future profit is concerned, absolutely ruined by the moths, are quite enough to convince him that we face a "condition and not a theory," but if we are to use a powerful poison by the ton—and three tons per year will hardly supply this small town to spray its highways and a part only of its orchards—let us use it intelligently: and as that is enough to kill all the inhabitants in the State, with a ton or two left over, why not use it carefully?

Is there need to say this? Well, judge for yourself. A year or two ago the person in charge of the spraying in this section assured me that arsenate of lead, which he termed, with a considerable degree of accuracy, "arsenic of lead," would "not hurt any thing that breathed through the mouth." This might be a valuable bit of information for the doctors who condemn "mouth breathing," and at any rate it showed his profound knowledge of respiratory processes.

Last spring the owner of a valuable horse which was drawing a part of the spraying outfit offered, if I would, as he expressed it, "put up fifty dollars," to feed a pound of the poison to the horse. I was assured by other employes that, where their dinners had been wet down and accidentally "soaked" by the spray, they took no harm, and "would as lief eat the stuff as not." "It killed my bees," said one, "but it was only one swarm, and this is a pretty good job."

I was assured a few days ago that forcing the poison into the blossom "gave a much better color to the fruit;" and I was told, but can not vouch for the fact, that a certain large orchard was sprayed on the mature or nearly mature fruit to preserve the color and prevent any skin fungus.

Few realize the danger of a cumulative poison; but the progress can be observed on the song bird or the toad that eats the dying larvæ—if an insectivorous bird or a toad is *left* to die next summer. There may be a few, but they are mostly gone.

It should be noted that the poison is quite attractive to the bee, either because of a sweetness in this form of lead, or, as some believe, by the mixture of an adhesive like the "molasses" from the sugar-beet manufacture, which, as a waste product, is very cheap and effective.

This arsenate is extremely adhesive; and if spread upon the fully developed leaf it will remain effective for the fall crop of brown-tails; but I know an old nurseryman who says he does not like to have "the lungs of his trees" clogged up all summer, and asks, "Why not spray when the leaves are small, kill the larvæ when they also are small, and have done less damage; then let the leaf and fruit develop?" That sounds sensible to me; but he is past 80, and so, probably, is wrong.

It is unavoidable that some poison be taken into the hive from the foliage, especially as wet up by dew, rain, and rarely by honey-dew! but that is a loss the beekeeper should bear patiently. No one is to be blamed; and the loss, as compared with that resulting from spraying in bloom, is trivial, although where large areas of forest land are sprayed it will destroy the bees in the immediate vicinity.

Late spraying is also destructive to the various parasites and predatory insects which would, could their numbers be sufficiently increased, keep both gypsy and brown-tail in check. This part of the question is sufficiently important to be discussed in a paper by itself, and by a more competent person than I.

In reviewing this article I am convinced that I have not put this very serious matter too strongly, but, rather, that I have not expressed it forcibly enough; neither have I touched upon the loss of domestic animals by the careless and excessive use of the poison, nor upon the injury to the new growth and more easily injured parts of the trees and plants which it is intended to protect.

The United States Department of Agriculture, our very efficient State Board, the Agricultural College, and many officers of the Gypsy-moth Commission and State Forestry, are doing all they can to spread information and explain "safe and sane methods." Even the dealers in the poisons print (in some cases) warnings not to use in bloom; but still the evil increases, and only yesterday I was told by a man who had planned to set a rather large orchard in the spring that he had abandoned the idea, for, as he expressed it, "They have killed my bees, and won't let me keep any more, and I can't fertilize my blossoms by hand."

NEVER SPRAY FRUIT-TREES WHEN IN BLOOM

An Extract from the Practical Farmer

[The following article, coming as it does from the *Practical Farmer*, a paper not directly interested in bees, has all the more weight. Notice that the emphatic reply is from our old friend Prof. H. A. Surface.—Ed.]

A fruit-grower, who should by this time know better, writes to State Zoologist Surface, Harrisburg, and asks: "What kind of spray is best to use when peach-trees are in bloom?" Prof. Surface is anxious to have the substance of his reply reach every person who may even be interested in the least in the subject of spraying. He says that it should be "proclaimed from the housetops and written in the schoolrooms." The reply is emphatic, and based upon years of experience and study. It is as follows:

"I note with interest that you make inquiry concerning the kind of spray to use while the trees are in bloom. Again I hasten to say that you are decidedly wrong. Please get it out of your head now and for ever, for your own sake and that of your crop as well as for the bees, that no trees, shrubs, bushes, or vines of any kind should ever be sprayed while in bloom. Please tell this to your neighbors. Please tell it to the editors of all the papers. Proclaim it from the housetops. Let everybody learn that, to spray a tree while in bloom, is liable not only to injure the fruit and thus help to destroy the crop, but also kills the bees and other insects that are absolutely essential in carrying pollen from fruit to fruit, and thus help fertilize the blossoms and insure a crop.

"If there is any one thing against which there should be definite and emphatic legislation in this State at the present time it is the ignorant and absurd practice of a few persons who yet appear to spray while in bloom. Please help us to educate the people against this practice. Education as practical and rational as this would do much more than legislation, as growers, if educated on this point, would understand it is greatly to their disadvantage to spray while in bloom. This fact should be placed before each schoolteacher, and kept on the walls of each schoolroom of the State. Let us make it strong. Tell every schoolteacher in your county to write on the blackboard in capitals: 'Never spray while in bloom.'

"Another reason for not spraying while in bloom is that there is no need of it. There are no pests that must or should be killed or prevented at this time. It will not do anywhere near the amount of good that it would to spray before the blossoms appear, and again after they fall. Before the blossoms open, spray with the boiled lime-sulphur solution, either home-made or commercial, boiling one pound of lime and two pounds of sulphur in one gallon of water for one hour, and dilute this with about six or seven times its bulk of water, and spray the trees thoroughly and before the blossoms open. About the time the leaf buds are swelling is the best time. This is good for all kinds of trees, shrubs, and bushes. After the brown husks of corollas fall from around your peaches and plums use this same preparation, but ten times as much water as you would at the other time; and to every fifty gallons of the extremely dilute preparation add two pounds of arsenate of lead, and spray again. The first spraying here mentioned is to kill the San Jose scale and certain other insects and plant-disease germs. The second spraying is for the curculio that makes wormy fruits, and when used on pome fruits, or apple, pear, and quince, it is for the codling moth and certain other insects and diseases."

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REDEEMING BY CAREFUL PRUNING AND SPRAYING, A BADLY NEGLECTED APPLE-ORCHARD OF SOME 50 ACRES

BY J. L. VAN RENSSELAER

That Ohio is equal to and perhaps even better adapted for the raising of apples than are Oregon and other western States, has been thoroughly demonstrated this fall by W. H. Southam and myself. Early in the spring of 1913 we rented what is commonly known as the Wm. Bennett farm, just south of Stone Hill, in Brunswick, Medina Co., O. The farm consists of 200 acres with approximately 55 acres of orchard with 1400 apple trees. The farm was leased for five years of Mrs. Frank Isham, 47 Beersford Road, Cleveland, O., with the privilege of buying at the expiration of the lease. We took possession of the farm in January, 1913, and immediately set about pruning and trimming the badly neglected trees until we had the entire 55 acres of orchard in the best of shape, with all the dead and diseased limbs removed and burned before the warm weather of the spring arrived.

The orchard was in a worn-out, run-down condition, and for years had borne but a scanty crop of wormy and ill-shaped fruit; but this fall, under careful management, thousands of bushels of perfect fruit have been harvested.

The first spraying was done with a lime-and-sulphur solution while the buds were dormant. The second was done when the buds began showing pink, early in the spring, with 3½ pounds of arsenate of lead, to 1¼ gallons of lime and sulphur to 50 gallons of water. The third and practically the most important spraying was done when the petals showed first signs of falling; and the fourth followed within ten days after the third. The fifth commenced July 1. The same formula was used for the last four complete sprayings. As a result of careful work the pickers found on an average but one wormy apple in a bushel of all apples harvested.

One year ago, 25 acres of this orchard had almost no leaves, and it has been years since this portion has had any apples at all. By these regular sprayings this same orchard had perfect foliage, and practically every tree in the orchard was very heavily loaded with perfect fruit.

The orchard presented one of the most beautiful sights imaginable, with the hundreds of trees, and their branches bending to the ground, heavily loaded with beautifully colored fruit. There are trees of al-

A pile of 500 bushels of perfectly formed apples—not an ill-shaped one to be found. Intelligent spraying and perfect pollenization by the bees, responsible.

most all of the old standard varieties, without a poor variety among the 1400 trees.

It required about six weeks of continual work on the part of the staff of pickers to harvest the enormous crop of fruit. Tents were erected, and the pickers had a jolly time camping out, which added spice as the work was being accomplished. The results have been a revelation to farmers for miles around, and the orchard is attracting State-wide attention.

Fifty swarms of bees were placed in the orchard by The A. I. Root Co., which greatly aided in pollenizing the blossoms. We find the bees very beneficial to our crop, and we advise each fruit-grower to secure bees to aid them in this great work.

We have proven conclusively that the apple-orchards in Ohio have long been neglected, and that the Buckeye State is wonderfully adapted for the raising of apples which will rank with the best in the country.

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NO FRUIT SETS IF THE WEATHER IS COLD DURING BLOOMING TIME, SO THAT THE BEES DO NOT REACH THE BLOSSOMS

BY J. W. ROUSE

We know of no two other businesses that fit so well together as bees and fruit-growing, as neither interferes to any great extent with the other, and each of these pursuits needs the other to succeed well.

Bees can do without fruit-bloom in early spring, as they are compelled to when it is too cold or wet for them to work on the bloom when out; but in many cases the fruit-trees do not do nearly as well as when bees work on the bloom. We would not pretend to say that *no* fruit could be grown without aid of insects to carry and distribute pollen, yet in many cases it is true that, unless insects do do this work, the trees often fail to set more than a very little fruit. Horticulturists are agreed that fruit-trees should be located so that the different kinds

A close view of some of the apples just before they were picked (see preceding page). Notice how thickly they are clustered, and that every one is a perfect specimen. See also the cover picture for this issue.

may blossom at nearly the same time so as to distribute the pollen properly. The wind often aids in this work; but in unfavorable weather, if the winds are contrary, or during a wet time when no insects can get around, it often happens that no fruit is set. Even under the most favorable circumstances insects are a great help in the proper distribution of the pollen, as they mix it to a great extent, and thus in a large measure prevent in-breeding, which is so detrimental to fruit-growing in most instances. Many of the leading horticulturists are now agreed that bees are a great help in fruit-growing.

One of the most extensive fruit-growers, who has a great many orchards in different States, says that he always wants bees in or near his orchards, as in so many cases they are a necessity to growing fruit by properly securing fertilization of the bloom.

As has been stated before, there are other insects that work on fruit-bloom besides bees; yet, as most people know, in early spring in blooming time, when it is so necessary for the insects to work on the bloom, bees are much more plentiful than perhaps all other kinds together, especially when bees are kept in any great quantities, as the bees live through the winter in colonies, whereas other insects live as individuals, and have to breed up. In many cases they are too late for early fruit-bloom. As an illustration, bumble-bee queens winter singly, so that, when the first bloom of clovers is on, there are only a very few of these bees; but by the time the second crop comes on, the queen bumble-bee has raised large families, and there are great numbers of them at this time; so the second crop of clover—especially red clover—is the crop that has the seed, the first crop having but very little. If it had been properly fertilized it might have as much seed as any crop.

In our observations in the past we have noticed that in a wet time, when bees can scarcely get around, but little fruit sets on the trees. During one wet cold time the sun came out for a while, and we had one pear tree on the east side of a house that the bees worked on an hour or so. This tree set fruit, and had pears on it, and no other of our trees or any others in our neighborhood, so far as we know, had any pears on the trees that season. If fruit-trees are so protected that bees can not visit the blossoms, little or no fruit will set. In all our experiments on this line we have never had any fruit to set if the bees could not get to the bloom.

Mexico, Mo.

500 PERFECT COMBS FROM FOUNDATION HAVING WIRES IMBEDDED OUT OF LINE.

BY W. N. RANDOLPH

[The following article was written last spring, but our correspondent had neglected to send it to us until the publication of the article by H. H. Root on the same subject in our Nov. 15th issue. We are glad to place it before our readers here as an additional endorsement of the plan of pulling the wires out of alignment when imbedding.—Ed.]

It seems that, with all that has been written on the subject, it would be exhausted; but I am satisfied that we have a lot to learn yet in all departments of beekeeping. Believing this, I will give you my plan.

I use the Hoffman brood-frames with full sheets of foundation, and with four wires imbedded in the wax across the frames. I use the frames with grooves and wedges in the top-bar to hold the foundation fast at the top; but I find in practice that the heat of the hive will very often loosen the foundation, and the bees drag it down and make a mess of things, even with the wedges pressed firmly in. In order to prevent this I pour a tiny stream of melted paraffine along each side of the foundation where it joins the top-bar, to hold the foundation secure. I use the paraffine because it costs only 9 cents per lb., while the wax is worth 30 cents, and the bees do not seem to notice the substitution.

In wiring I use the spur imbedder. There is a point in wiring that is overlooked; the top strand of wire should be pulled down slightly in the center, and the bottom strand should be pulled up in imbedding, so that the bottom wire will brace against the pull of the top wire, and prevent the wrinkling or buckling of the foundation. The two middle wires should run straight across the frames. This will give smooth straight and strong combs, with the wires braced as in a suspension bridge, and the wires will take the jars from the combs as they were intended to do. The wires should not be pulled down too tight or a job of buckling may be the result; for while outside the hive the foundation may be cold and stiff enough to offer sufficient resistance to the pull of the wires and look just right when it is in the hive, and the heat of the bees softens it, it will often give way to the pull of the wires.

I used this plan in making some 2400 combs a year ago, and an equal number last season, and nearly or quite all of them made perfect combs.

Do not give your nice new prepared combs to the bees until a honey-flow is on and they are secreting wax. Remember to

Peach tree that blossomed in cold weather and bore a good crop because it stood so close to the bees.

run new extracting-combs gently through the extractor the first season used; for when new they are very fragile. After the first season they will get tougher each year. It is strange that, while the bees will always store honey first in the old combs, they will start queen-cells in the nice new combs in preference, even if they have to move eggs from the old combs to the new.

Letohatchee, Ala.

PEACH TREES NEAREST THE BEES PRODUCED THE BEST CROP

BY S. H. BURTON

Dr. C. C. Miller, page 517, Aug. 1, says he has always had just a little doubt as to the statement that bees are of more value as fertilizers than as honey-gatherers; but the cranberry business, p. 479, July 15, may yet remove all doubts. I herewith submit some photographs of our peach orchard which may help to dispel any doubts. Dr. Miller may be from Missouri, and have to be "shown."

We have eight colonies of bees located in our packing-shed, with the entrances facing east. These stands are set on a bench, and the alighting-boards extend through an opening in the wall. When the peach trees commenced to bloom it was nice balmy weather, and the bees were flying finely; but by the time two-thirds of the blossoms were out the weather turned very cool with a cold rain following. For a period of ten days we had damp, cool, muggy weather, and the bees did not venture far from home. However, as our packing-shed and the bees are located right in the midst of the peach-orchard the first row of peach trees directly in front of the shed, and about 30 feet from the alighting-boards, were loaded with peaches, while the second row of trees from the bees showed more fruit on the side next to the colonies than on the off side. At the rear of the farm, across a five-acre lot, the peach trees averaged about two dozen peaches to the tree, all the same variety, Carmans; all trees had equally good care as to spraying, pruning, and cultivation. Now, I don't say that the bees are entirely accountable for the great showing of fruit on the trees next to the hives, but it does look as if the weight of evidence was in their favor. Of course, some one will say that the shed had something to do with it; but one tree at the corner of the shed, and not protected by it from the prevailing cold winds, had more peaches than any of the rest. This tree stands within five feet of the hive, and just at the side of the line of flight. During the cool spell referred to above I noticed that very few bees were working on the peach bloom on the further side of the orchard, I having some work there which caused me to take note of the fact; but I never thought to observe if they were working on the trees near the shed; but since the trees have fruited I have studied over the matter.

By the way, if any beeman wishes to set a good variety of peach he can not miss it on the Carman. It gets ripe here about three weeks ahead of the Alberta; comes on the market after early peaches are gone, and is fine for canning or dessert. It is an early and prolific bearer, and very hardy in bud. The orchard shown is five years old, and producing its first crop of any consequence. We are able to market every peach at home at $2.00 per bushel, and the people cry for more. Next spring, if we have indications of a good peach crop I shall scatter the hives through the orchard and note results.

Washington, Ind.

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COLONIES WINTERED OUTSIDE RUNNING SHORT OF STORES

BY A. C. GILBERT

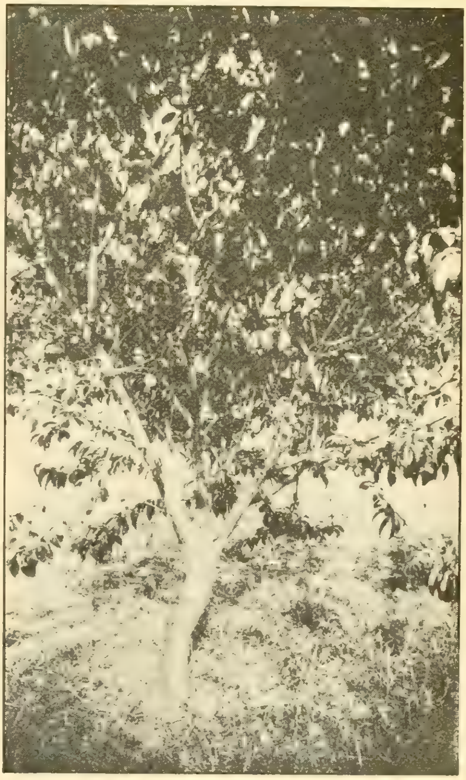
No doubt, owing to the very mild weather up to Christmas, thousands of colonies of bees will die before March from lack of stores in the northern sections of the United States if not looked after. None of our hives have racks on during the winter, as they are all removed in the fall when all colonies are examined to ascertain that all have a sufficient amount of stores. At the time of removing the racks, small cobs are first laid on the top-bars *a la* Dr. Miller, over which a piece of cotton cloth or burlap is covered; then the chaff tray or cushion is placed in proper position. At any time in the winter any colony can be examined very easily by lifting off the chaff tray or cushion and turning up the covering a little from over the top of either end of the top-bars; and as the bees will generally be closely clustered at this season of the year, the amount of stores and number of bees can be ascertained very readily. Some colonies will be found to cover a large portion of the combs; often less, and perhaps some may not occupy one-third of the combs. The last mentioned may have several combs of honey to spare. At the same time it will be a great benefit to such a colony to have the frames of honey removed and the division-board moved up, thereby making them far more comfortable, and putting them in better shape to pass through the rest of the winter, also lessening their chances of being robbed.

We have saved many of the largest colonies by dropping in two or three combs of honey along in February and March on even a cold day without harming them in the least by the operation. Some very populous colonies which apparently have a great plenty of honey in the fall run short, especially in a mild winter, when so much more is consumed.

One season we lost several of the largest colonies in the yard from starvation along in March. Since examining them as stated we have lost none. It would be a good idea to heed the editor's warning in the Dec. 15th issue. *Don't let your bees starve.*

SNOW-COVERED COLONIES.

We doubt whether it is a benefit to have the snow drift entirely over the hive. From what experience we have had it is best not to have much snow around the hives if it can be avoided—that is, to have it come up



A peach tree that blossomed in cold weather, and did not produce a good crop because so far away from the bees they could not reach it.

Members in attendance at the Iowa State Convention, Des Moines, December 12-13, 1913.

very high on the hives. Before building a high tight board fence back of the hives in our apiary the direction the snow generally drifts from, most of the hives were frequently completely buried in the snow; consequently the bees in those hives would commence to breed too early, which greatly excited them, causing a greater consumption of honey, which, with the dampness and sweat, would generally bring on dysentery, etc., while the bees in other hives where the snow did not drift on them were entirely free from the disease, and wintered in fine shape. By the way, not much has been written lately about the above disease and the pollen theory since the days of the late James Heddon.

Honeoye Falls, N. Y.

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THE SECOND ANNUAL CONVENTION OF THE IOWA STATE BEEKEEPERS' ASSOCIATION

BY H. H. ROOT

When a few Iowa beekeepers first became enthusiastic over the possibility of an organization among the beekeepers of the State they were told that there were too few beekeepers, and that they were too widely separated to make the plan a success—that it had been tried before and abandoned, etc. Nothing daunted, however, they started in to do their best at perfecting an organization on the assumption that "where there is a will there is a way." How well their efforts and the efforts of others who helped succeeded is best told by the convention picture which appears above, but the picture does not show all the members in attendance by any means. In all there are now about double the members of a year ago. Good for Iowa! The second annual meeting was a success in every way, both in point of attendance and enthusiasm.

A large amount of honey was contributed by the members for the Salvation Army Christmas dinner, and a jar of honey was also sent to Governor Clark for his Christmas table. To encourage the use of honey at Christmas time, large display cards were furnished all who desired them, bearing the words, "Eat Honey for Christmas Dinner."

As I was able to be present at but one session, I shall make no effort to give a general report of the convention beyond the synopsis of the president's address and a brief report by J. W. Stine, which follows. I secured several papers that had been read, parts of which will appear in later issues.

SYNOPSIS OF ADDRESS OF PRESIDENT FRANK C. PELLET.

1. Only one State of equal area ranks ahead of Iowa in the value of her bees. Iowa far outranks Colorado, Idaho, and other western States of greater area whose possibilities are so widely advertised.

2. With proper encouragement Iowa can soon rank first, area considered, as a honey-producing State. Only California and Texas, with their great size, are now far in advance.

3. The society has secured the passage of a foul-brood quarantine law, and better support for the inspection work the past year. Also greatly increased attention in the way of better premiums and facilities at the State and county fairs.

4. The greatest need of the beekeeping industry in Iowa now is a better understanding on the part of the public of its importance to the State, and better methods of production and marketing on the part of the beekeepers.

5. Instead of asking for increased support for the bee-inspectors' office the beekeepers should begin a campaign of education to the end that the treatment and prevention of diseases be better understood and that inspection be less needed as a result.

6. The use of second-hand honey-containers and other equipment should be discouraged unless thoroughly disinfected, as this has been a source of much of the spread of foul brood.

7. The society should endeavor to work out some system of crop distribution that would net the producer better prices without injury to the consumer. Too much honey is shipped to commission merchants in Chicago to be sold to jobbers, who in turn sell it back to grocers near at hand. The securing of a list of all persons who desire to purchase honey, by the secretary of the association, who will place said list at the disposal of every member of the association, will be a step in this direction. If grocers wishing to buy honey knew that, by writing the secretary, their wants would be placed before all the leading beekeepers of Iowa, they would readily take advantage of the opportunity.

8. A system of regular crop reports from each county should be developed, to the end that the probable production may be ascertained early, and prices governed accordingly.

9. The society should appoint a committee to look into the possibilities of co-operative marketing by members of this association.

10. The beekeepers should endeavor to secure an extensive campaign of education through the State Department of Agriculture, the agricultural college, and other avenues, rather than to attempt to secure further increase in the support of bee-inspection work at present. Better understanding, on the part of the beekeepers, of bee diseases will largely reduce the necessity for inspection by a State official.

11. Beekeepers should begin a campaign to establish the use of honey on every table for the Christmas dinner. The Salvation Army and other charities should be provided with honey for the poor who are unable

Julius Johansen, of Port Clinton, Ohio, standing under a pear tree loaded with blossoms and bees. The apiary is just back of the greenhouse out of sight.

to buy it for such occasions. With a little effort honey could easily be made as essential to holiday dinners as cranberries have become already.

THE DISCUSSION ON FOUL BROOD

BY J. W. STINE, *Deputy Bee Inspector.*

One of the topics of special interest to those having diseased bees, or who had near neighbors with diseased bees, was the paper on the foul-brood situation in Iowa by Mr. Edward G. Brown, of Sergeants Bluff. He told of a very interesting and practical way of dealing with American foul brood. The plan in brief was as follows: Take the diseased colony and shake or brush all the bees from the comb and hive it in a hive with starters. Insert an empty comb in place of one frame, with the starter, thus giving a place for the bees to deposit the diseased honey. As soon as the honey has been deposited, probably by the next morning after hiving, take away the comb of honey and insert a frame with a starter. All the combs built from the starters are saved by this method.

The beekeepers of Iowa as a whole seem quite willing to co-operate with the inspectors in getting rid of disease among the bees. As a matter of fact, the work of the inspector is educational; and when the beekeepers are all willing to become educated along apiarian lines, especially with bee diseases, there will not be the need of the field work of the inspector that there is now.

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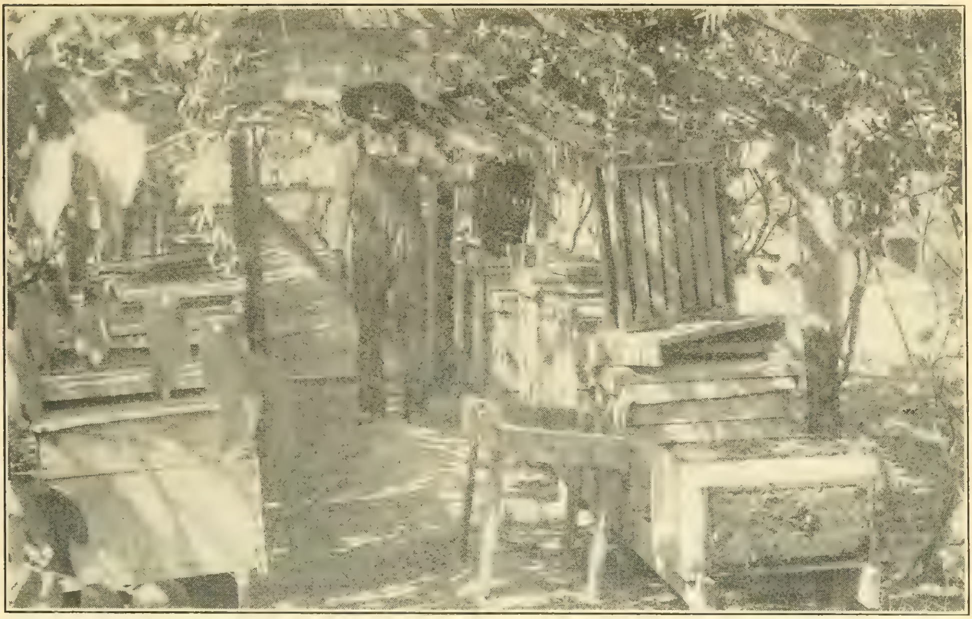
FRUIT-GROWING SO GENERAL THAT BEES CAN NOT MAKE A LIVING; YET THE FRUIT-MEN ARE BUYING MORE BEES

BY JULIUS JOHANSEN

On the so-called "Peninsula," Danbury, and Catawba Island, fruit-growing has become so general that the farmers there buy their own feed stuff, every available foot of ground being planted to fruit. It is only when an orchard has become too old, and is, consequently, pulled out, that the land is planted to farm crops a few years to invigorate it, as they say. Then it is planted to fruit again.

Most of the farms are small—many only ten or twenty acres, with very few above 40.

Many of these small farmers were also beekeepers on a small scale a few years ago. They kept eight or ten colonies each: and one of whom I knew had 25 or 30. How-



Apiary of D. S. Zedeker, Parlier, Cal., consisting of 151 colonies, all located under a grape-arbor. Why don't the bees "eat the grapes"?

ever, as fruit-growing became so general, the bees failed for lack of food, I think. Not able to get what they wanted, they took what they could get—honey-dew, I suppose. Some have asked me why their bees made nothing but black, bad-tasting honey. On account of it the colonies often died through the winter.

After most of the bees had died the fruit-growers began to realize that some certain varieties of peaches did not do so well as they did when there were bees to visit the trees. This was especially noticed by a Mr. R. Shumardebeck, an extensive fruit-grower, and a keen observer of nature. He called on me, and asked for the loan of some bees. He said that, since his neighbors' bees were dead, he scarcely saw a bee in his orchard; and since then this variety of his peaches had given very small crops.

Well, he got the bees, and hauled them six or seven miles; and after fruit-bloom was over he brought them back again full of honey. In the fall he brought me some peaches, and said the bees had greatly benefited his crop. At this time he also made arrangements to get some bees for the next spring.

Since then I have heard that some of the smaller growers have stocked up again for the sole benefit of their fruit.

Port Clinton, Ohio.

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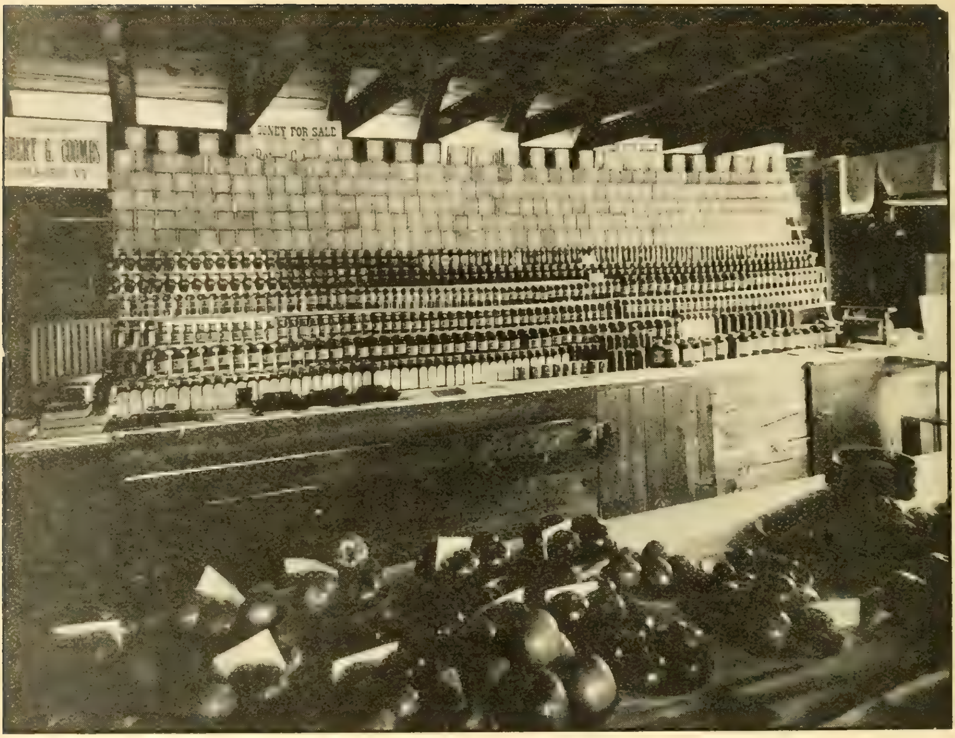
EXCELLENT HONEY DISPLAY AT THE BRATTLEBORO (VT.) FAIR

BY DR. BURTON N. GATES

Assistant Professor of Beekeeping, Massachusetts Agricultural College

The Valley Fair, held at Brattleboro annually, has the New England reputation for superiority of the materials exhibited in all classes. This September Mr. Robert G. Coombs, of Guilford, made an especially attractive display of bees, wax, appliances, and comb and extracted honey. For the honey display, as shown in the illustration. Mr. Coombs used the massing effect. This was accomplished by means of shelving arranged in graduated steps. A further unique and desirable feature was the illumination of his display by numerous electric lights in the rear. This added materially to the brilliancy and sparkle of his products. The fair being held after cool weather had set in precluded the possible disaster from the entrance of robber bees which might have attacked the exposed comb honey. To obviate this difficulty, as has been previously mentioned, the Connecticut Beekeepers' Association have prohibited the display of



Honey exhibit at the Brattleboro (Vt.) Fair, 1913. This is an excellent set-up of the local product. Note the brilliancy obtained by the electric illumination from the rear.

comb honey which is not glazed or otherwise protected from the attack of bees. The glazing is further advisable from the sanitary standpoint. Another feature which Mr. Coombs might have utilized is the glass shelving so much liked by those who display in Connecticut. Glass shelving, of course, facilitates the transmission of light and adds to the brilliancy of the exhibit.

Mr. Coombs is, by the way, an enthusiastic and progressive beekeeper. He informs the writer that, from 131 colonies, he secured 1793 pounds of fully capped comb honey and 2209 pounds of extracted honey. Mr. Coombs also raised upward of 1000 queens, and has, besides, handled upward of 400 colonies of bees, a part of which was the increase from his yard. He puts into winter quarters about 131 colonies. The nectar flow in his locality is largely clover and raspberry. By judicious manipulation it is estimated that at least 500 colonies may be supported in the vicinity.

Amherst, Mass.

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THE OPINIONS OF SOME FRUIT-MEN AS TO THE VALUE OF BEES

Location for Outyards Provided by the Fruit-men who also do all the Hauling Necessary

BY J. M. DONALDSON

On page 790, Nov. 15, the editor says: "We believe the time will soon come when beekeepers living in fruit districts need pay no rent for out-apiaries." With me that time has already come. When I moved into the fruit-belt of New Jersey, long before I had increased my bees enough to make out-apiaries necessary, I began receiving requests from fruit-growers to place bees in their orchards, owing to the fact that they wanted the bees more than I did the locations. I was able to make bargains with

J. M. Donaldson's apiary, located in the Ballinger orchard. Mr. Ballinger is so anxious to have the bees there that he does all the hauling free of charge.

them that were very much in my favor. My agreement usually is that I place the bees on the farm in question, and in return the owner gives me ground rent, and does all my hauling to and from the yards. This agreement makes it possible for me to operate all my yards with one outfit without either keeping or hiring horses.

Of course I give my landlords all the honey they need for family use, but in return they give me fruit and berries that equal and often exceed the price of the honey.

Cut No. 1 shows my Ballinger yard, located on the farm of David Ballinger. This farm has 138 acres planted with fruit and berries. Here is what Mr. Ballinger says:

> The bees at my farm I consider a very necessary adjunct to fruit-growing. I grew last year 15 acres of strawberries; and although we had several frosts which killed quite a lot of bloom, and also fruit that was set, we had a fair crop, for which I give the bees the credit, as they helped to fertilize the later bloom, which, of course, was weak in that particular.
>
> I also find the bees valuable for helping to get a set of fruit on my apple and peach orchards, as oftentimes we have either too much wind or some days none at all.
>
> My crops of fruit and also strawberries have been larger, and also more regular, since keeping more bees.

Cut No. 2 represents my Lippincott yard, located on the farm of J. Howard Lippincott, which contains 120 acres planted with apples, peaches, and berries. I was unable to get a written statement from Mr. Lippincott, but the fact that the apiary is there should be sufficient proof that he considers them valuable.

I have only one yard that is not located on a fruit-farm. That is my Campbell yard, located on the farms of the Campbell Soup Co. They grow vegetables and berries, also cucumbers, both in the open and under glass. Mr. H. F. Hall, their general manager, who is also president of the Vegetable-growers' Association, says:

> The service of the honeybee is of the utmost importance in growing cucumbers under glass; as, without their aid, it would be necessary to hand-pollinate every female flower in order to obtain a crop. This would result in higher prices, due to the extra labor required, as well as to the fact that a lighter yield with a smaller percentage of high-grade fruit has always resulted when hand pollinating is substituted for the work of our little friends the honeybees.
>
> The bees adapt themselves very readily to the greenhouse environment, provided the hive is not kept at too high a temperature. During warm weather it is advisable to place the hive outside the house, and provide an opening through the wall or glass.

I think that beekeepers who are located near fruit-growers can hasten the time spoken of by the editor if they will arm themselves with expert testimony, go to the fruitmen, and have a heart-to-heart talk.

Moorestown, N. J.

Another of Mr. Donaldson's apiaries, located in the Lippincott orchard, consisting of 120 acres of apples, peaches, and berries.

COLOR SENSE OF THE BEE

A Lecture by Dr. Carl Mulsow, Munich. Published in the Muenchner Bienenzeitung. Translated by J. A. Heberle, B. S., Markt Oberdorf, Bavaria, Germany.

[The average American reader is apt to skip over scientific articles, especially those which are not illustrated. In other words, we read what can be read quickly, and often put off the long discussions for another time—another time which too often never comes. The following list of experiments, proving that bees are not color blind, is interesting and valuable, and we feel sure that those who pass it by will be the losers.—Ed.]

The relation between flowers and insects has long been one of the most favored and interesting chapters of biology. The naturalist Christian Konrad Sprengel was the first one who, at the end of the 18th century, showed by many experiments that flowers do not, without compensation, give their sweet treasure (the nectar) to the visiting insects. He demonstrated that the flowers were dependent on the visits of the insects. He showed various forms and devices of the blossoms that insured the necessary pollination by the nectar-gathering insects. The flowers secrete nectar, not as a generous gift for the benefit of the insects, but for the selfish purpose of being pollinated to propagate the species. Sprengel was also of the opinion that the various bright colors and the sweet scent of the flowers were for the purpose of attracting the insects. To facilitate the finding of the nectar in the depths of the blossoms there are often conspicuous markings and patches at the base of the petals—signs to show the insects the way—to lead them to the nectaries.

After Sprengel other naturalists continued the study of these interesting observations, and added numerous new facts. Most naturalists accepted the theory that the bright colors of flowers are for the purpose of attracting the insects. Some scientists, however, opposed this theory, especially the French scientist Plateau, who endeavored to show by numerous experiments that the color is of no importance for the finding of the flowers by the insects. Other scientists who opposed Plateau's view devised new experiments to show that Sprengel's theory was well founded.

The entire controversy was opened again when the ophthalmogist Hess, who had made an extensive investigation about the color sense of various groups of animals, asserted that the insects, especially the bee, have no color sense—that she is color blind. To digress a little, a few words about what is meant by color blindness. The color-blind man can distinguish various colors from each other, but he does not see as the man with the normal eye; various colors he sees as only different shades of gray. He distinguishes the colors only after their brightness. Through long experience the color blind has learned from childhood that his associates called this blue, that red, etc., so that in most cases he can tell the color of objects from its brightness. If, however, two colors that are of a decidedly different hue (shade) have the same brightness, then the color blind can no longer see a difference. So we may say the color blind has the ability of distinguishing various colors, but has no sense of color—he sees the colors not as such.

Hess came through his extended investigations to the conclusion that a sense of color is developed only by the higher order of vertebrate animals, and that the lower order from the fish downward are destitute of the sense of color. Hess used in many of his experiments the bee, and thereby was the controversy whether the bees or the insects were attracted by the flowers through their bright colors opened anew.

If, as Hess asserts, the bees are color-blind, how are the various experiments by which many scientists formerly showed that the bees were attracted and the sense of location assisted by the colors to be explained? The explanation is very easy. All these experiments showed merely that the bees can distinguish between various colors the same as the color-blind man, but are no proof that the bees have color sense. This is the new principle on which Hess (and perfectly correct) wants the question solved.

That is the theoretical part of the question. Now we will consider some selected experiments which have been recently made with a view of proving the color sense in bees. We will determine the value of these experiments after the new theory developed by Hess.

The zoologist v. Dobkiewicz made numerous experiments which, in their arrangements and results, often agreed with those of former investigators. For instance, on a clover-field that was visited by a great number of bees he put up conspicuous artificial flowers of a yellow color that were filled with honey. These flowers remained unnoticed by the bees for a long time. The bees when once started to work on a flower are not readily detracted. If, perchance, a bee alighted on one of these artificial flowers, or the experimenter put one on, such a bee returned to the new feeding-place as long as she found something there. She is guided by the sight because now she alights also on yellow artificial flowers which contain no honey.

In a similar way bees may be trained to visit colored disks. In a place in his garden over which the bees of one colony flew regularly, v. Dobkiewicz put up large disks that were covered with red, yellow, and orange colored paper. These disks were not noticed by the bees. He put a plate with honey near these disks. This plate, with a few bees that had alighted on it, was set upon the yellow disk. The bees were now for days fed on the yellow-colored disk. One day the places of the colored disks were exchanged, but the honey remained on the yellow disk. The bees visited only the yellow disk—never the orange-colored one that had been put on the place that the yellow had occupied. Finally the disks were again placed as at first. The yellow disk was now without honey, but the red and orange colored disks received honey. The bees visited again the yellow disk, looking in vain for the accustomed honey, while the honey on the red and orange disks was not noticed. The bees had been trained to look for food on the yellow color.

The possibility of training bees to visit a certain color is shown very nicely by the following experiment also carried out by v. Dobkiewicz.

A square box was used having three sides of glass and the fourth one of cardboard. In the cardboard two openings were cut, one to the left side, the other on the right side. A comb of honey was put in the box. The bees had been trained in a former experiment to use an opening in a yellow box. On the cardboard side of this glass box a yellow disk was put next to the hole on the left side (the hole was kept open). The other hole on the right side was marked likewise, but a red disk was used, and the opening was closed. Inside both openings were marked just as on the outside. The bees, which had previously been trained to the yellow color, used for entrance and exit the yellow opening on the left. After some time the marking was exchanged, the red disk was put to the left and the yellow to the right opening. This change was made not only on the outside but on the inside also and both holes kept open. The bees were not confused; they used the yellow opening as before. After some time the marking was changed back as it was on the start of the experiment, but after a while the marking on the inside of the box was changed, the outside disks remaining unchanged—both holes kept open. The left opening on the *outside* was now marked yellow and on the inside red. The opening to the right was *outside* marked red, but on the inside yellow—both holes kept open. Again the bees used without hesitation the yellow opening on the left side for the entrance, and the right opening, which was *yellow on the inside* and red on the outside, was used as exit. We might say that their sense of location, or the entrance and exit in this experiment, was governed entirely by the yellow color.

These experiments proved what older investigations had already shown—the bees were in fact locating (finding their way) by colors. But do these experiments prove that the bees possess the sense of color? No, the bees might be color blind and react just as they did. By these, as by older experiments, was proven only that the bees can distinguish some colors. Whether they see colors as such is a different question which may also be solved by experiments, as we shall see by the following investigations of the zoologist K. v. Frisch, Munich. He takes issue with the views of Hess regarding the color sense of animals. He has also made experiments with bees to disprove the view of Hess that the bees have no sense of color.

K. v. Frisch in arranging his experiments was guided by the following principle:

A color-blind eye sees the colors only as various shades of gray. It sees no colors—only colorless brightness of variable intensity (farblose Helligkeitswerte).

Therefore to each color—for instance yellow—there must exist a certain shade of gray which a color-blind eye can not distinguish from yellow; both will appear of the same colorless brightness; both will have the same "*farblosen Helligkeitswert.*"

K. v. Frisch took 30 pieces of gray papers which showed all the various shades of gray from white to black. These papers, all of equal shape and size, were fastened on a table, not in the regular order of the shades of color, but at random. Among them were also placed two papers in shape and size as the others but of yellow color. On each paper a small dish was placed. Those on the gray papers were kept empty, while the two dishes on the yellow paper were filled with sugar syrup. As soon as the bees of a nearby colony discovered the syrup on the yellow paper they began to visit these two dishes in large numbers.

The bees were fed for two days on the yellow paper to train them to the yellow color. The places of all the papers were frequently changed so the bees might not learn to locate the syrup after the order in which the papers were arranged on the table (to eliminate as much as possible every thing for guidance except the color). The bees alighted always on the yellow paper without the least hesitation.

The two yellow papers and the dishes were taken away and two new yellow papers were put in other places. Two new dishes were put on these yellow papers. This was done so there would be no odor to attract or guide the bees. Now all the dishes on the gray and yellow papers were filled with syrup.

From this experiment the following deduction was made: If the bees are color blind they will see the yellow only as a gray, and must mistake some one or more of the 30 gray shades for the yellow. The bees, however, made no such mistake; they visited only the two yellow papers and paid no attention to the many syrup-dishes on the gray papers. In locating the syrups they were guided only by the yellow color.

After the syrup had been removed from the dishes on the gray papers and the bees fed for some time on the yellow, the dishes with the syrup were removed from the yellow and replaced with empty dishes, so that all the papers on the table contained only empty dishes. The bees visited the two dishes on the yellow papers in great numbers, searching in vain for syrup, but not a bee alighted on one of the gray papers.

In the preceding experiment it has been proven that the bees recognize the yellow paper not only by the colorless brightness but by the yellow color. K. v. Frisch showed further by experiments that the same results can be obtained for blue.

The following is a strong proof. After bees had been trained to blue the two blue papers were removed and two new blue papers were put on another place. All the 30 dishes on gray paper were filled with syrup; only the two dishes on the blue paper were left empty. The bees visited the empty dishes on the blue papers in great numbers, and searched industriously for syrup, while the dishes with the syrup on the gray papers were for a long time not noticed.

Against the preceding experiments the following objection might be raised. Although the shades of the 30 gray papers were so nicely graded that the human eye could barely distinguish the two nearest shades, perhaps the eye of the bee is so delicate for perceiving differences in color brightness that even if it sees no color it can readily distinguish the yellow and blue paper by its shade of brightness. If that were so, then the bees could be trained to one particular shade of gray. K. v. Frisch made the following experiments:

The bees were fed nine days exclusively on gray No. 15. After removing the syrup-dish from No. 15, and replacing it with an empty one, the bees were searching for the syrup on the various gray papers without any preference to No. 15. The objection to the experiments is therefore groundless.

With the above-recited experiments there has doubtless been proven that the bees really see colors. Another question is whether the color sense is similar to ours—if not, in what way it differs. K. v. Frisch has tried to solve this problem too. After bees were trained to a certain color, he used besides the gray papers various other colored papers also, and found that the bees sometimes, besides the color they were trained to notice, would also take notice of similar colors. Since the investigation is not complete we will not detail them further. It is interesting to note that the bees could not be trained to pure red. They would mistake it for black and dark gray. That means that the bees can not see the red color as such.

The fact that the bees can't see red as such brings us back to the relation of insects and flowers. In former times when no one thought of making exact experiments about the color sense of bees, investigators had pointed out that blue and violet blossoms were preferred by the bees, and the pure red neglected. This is true only of pure red. Purple and carmine red contain some blue, and are, as v. Frisch showed, recognized by the bees, but easily mistaken for blue.

The results of the experiments are in harmony with the colors of the flowers. With the exception of the poppies, whose size without the color is sufficient to attract the insects, there are hardly any pure-red flowers in our flora.

Many plants produce shining-red fruits, but these are intended for the birds, not the insects. It is of special interest that in some countries red blossoms are found quite abundantly, but by those plants that are pollinated by the humming-birds, not by insects.

The investigations of v. Frisch have doubtless proven that the bees have color sense. The old theory that the colors of flowers are designed to attract the insects, which has been opposed by Hess, has been successfully vindicated.

Markt Oberdorf, Bavaria, Germany.

REPORT OF KENTUCKY STATE BEEKEEPERS' CONVENTION

BY RICHARD PRIEST DIETZMAN

On Friday, January 9, 1914, of Farmers' Week, conducted under the auspices of the Agricultural College of the Kentucky State University, there was held a beekeepers' convention in one of the assembly rooms of the State Experimental Station. About fifty beekeepers were present when the convention was called to order at ten o'clock in the morning by Professor H. Garman of the State Experimental Station. He welcomed the beekeepers in a few well-chosen words, and introduced Mr. H. F. Hillenmeyer, of Lexington, Ky., who presented a very interesting paper on "Kentucky as a Beekeeping State." He was followed by Dr. J. H. Kastle, the director of the station, who had prepared a paper outlining the purposes of the meeting.

Professor C. W. Matthews, of the station, was introduced and read a very interesting paper on "Bees in Relation to Fruit-growing."

Dr. M. A. Aulick, of Bradford, Ky., was next introduced, and gave a most interesting talk on his methods of producing extracted honey. We understand that Dr. Aulick is one of the most successful beekeepers in the State, and that his extracted honey has always a ready market at the best prices. When he concluded his address, the points that he made were discussed on the floor by various people who were interested in the subject, after which Mr. H. C. Clemons, of Boyd, Ky., delivered an address on "Wintering Bees," advocating the use of sealed covers. There seemed to be a number present in favor of the absorption cushion, and an animated debate took place, which brought the convention up to the adjourning hour for lunch.

After lunch, Professor Garman presented a paper on the "Prevention of Swarming." Mr. E. E. Barton, of Falmouth, gave a talk on sweet clover. Mrs. J. T. Marvis of the same town was unable to be present, but sent a paper on the same subject, which was read.

Mr. Clemons then delivered a second address in the absence of Mr. Jordan, of Morgan, Ky., on "The Importance of Good Queens in an Apiary."

The convention then proceeded to organize a State Beekeepers' Association. Dr. Aulick was elected President, Mr. Clemons Vice-president, and Professor Garman Secretary and Treasurer. The constitution was adopted, and plans were laid for a vigorous campaign for members.

A bill had been prepared to strengthen the law concerning foul-brood inspection, and it was next taken up and discussed, section by section, and unanimously approved as prepared, and each member present pledged himself to use his best endeavors

Benjamin Paine's apiary and orchard at Roswell, Idaho. Reprinted from the March 15th issue for 1907.

with the members of the Legislature from his district to secure the passage of this bill, after which the meeting adjourned.

It is hoped during the coming year a large number of beekeepers in the State will become members of the State Beekeepers' Association, and that when we meet again next January during Farmers' Week we will have a strong, live, and compact organization, and a meeting that will be full of interest and instruction to all, from beginner to expert.

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A LARGE FRUIT-GROWER WHO IS ALSO AN EXTENSIVE BEEKEEPER

BY BENJAMIN PAINE

[Remembering the picture of the apiary in an orchard which we published in our March 15th issue for 1907, we wrote Mr. Paine, asking him to tell something of his experience during the six years that have elapsed. It transpired, however, that he had moved from the former location to another one near by—but his article, which follows, gives the particulars. The engraving referred to is reproduced herewith.—Ed.]

Finding I could not combine farming with beekeeping without hiring a great deal of help (and that took all the profit), I sold the forty acres that I lived on, at the time the accompanying picture was taken, for $205 an acre, and bought ten acres about a mile from the original home. I built a new home, and planned near it my bee-yard. I planted 98 cherry trees between the house and honey-house. They are from 10 to 12 feet high now, at 3 years old, and this year some had five gallons of cherries on them.

The bees, however, did not do as well, and for five years I kept getting less and less honey. After investigating this I found there were too many bees in my locality—1150 colonies in all in a circle of three miles around me, so I could see it was time for me to do something or lose out. I scattered my bees out in different yards from three to ten miles from home.

I had about 200 colonies last spring. They increased to 400 colonies, and I got $600 worth of comb honey and 14,000 lbs. of extracted honey. I put about 12,000 pounds of this in five-pound paper bags, and I got 7 to 7½ cts. a pound for it. There is more and more call each year for honey put up in this way. I had orders for tons that I could not fill this year.

Seven to twelve years ago when I was nearly the only one that kept any amount of bees I could count on $10.00 to the colony, spring count. Now since others have crowded in, if I get $3.00 to $4.00 a colony I do well. However, by spreading them out I did some better last year, although it takes more time and expense to care for them. My wife and I and my son tended them this year, so the expense was not very great. I have an extracting-wagon with power to run the extractor.

Idaho is a good bee country, but it is getting badly overstocked for profit to the beeman.

Roswell, Idaho.

[Mr. Paine has promised us a set of pictures of his portable power-extracting outfit. These will appear later in the season.—Ed.]

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PRACTICAL QUESTIONS CONCERNING BEES KEPT PRIMARILY FOR FERTILIZING FRUIT-BLOSSOMS

FROM HERBERT MILES

What is the best apparatus for separating honey from the comb for use on a farm having from five to ten hives?

What is the best method of keeping the number of hives down to ten? Please understand, we have not time to practice any scientific methods of swarm prevention and processes of that sort, but we don't want to lose any swarms or weaken our present stands by too much swarming. What we want to do is build up permanent strong colonies that will produce the greatest quantity of fine honey each season for our own consumption and that of our friends and relatives.

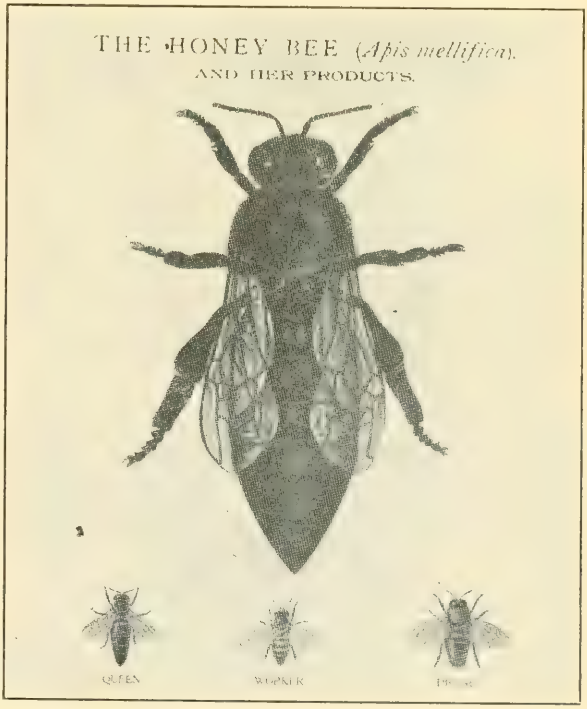
The prime purpose for maintaining these bees is to fertilize our fruit trees, flowers, etc. We have 150 acres in the heart of Maryland, one-half under cultivation, the other half in woodlands.

There is no running stream very close to our bees, and the writer noticed a number of them drinking out of a cess-pool a considerable distance off in the field from the house, into which are drained the urinals, bath-room, and kitchen of the dwelling. I believe this is a dangerous proceding, and one that is liable to carry infection not only to the bees but the people eating the honey. Of course, we have been told many times by scientists that water purifies itself after being exposed to the air and running a certain distance, and it would be difficult to cover the entire draining system from this cess-pool. The only other place for the bees to get water would be at the horse-trough or around the well-curb of the windmill. Can you suggest any easy and practicable arrangement to prevent the bees drinking at the cess-pool drain.

New York City.

[Under the circumstances we suggest that you keep all queens clipped, clipping the two right wings even years and the two left wings odd years. This plan will automatically enable you to tell the age of the queens at any time.

Undoubtedly it would pay you to produce extracted honey, as the problem of swarm prevention in extracted-honey production is very small compared to the same one in comb-honey production. Use good shade boards if the hives are located out in the open, and make sure that there is plenty of ventilation, both at the entrance and under the cover in the hottest part of the hottest days. Use pieces of broken sections under the cover, one at each corner, to give a little ventilation at the top in the hottest weather. This will do much toward preventing swarming, but, of course, should be done away with entirely when the nights are cool.



The cover of the writing-pad sent out by the N. Y. State Beekeepers' Association. See Jan. 15th issue, p. 69.

Follow the shaken-swarm plan for preventing increase. This takes only a little time, and effectually prevents increase beyond a certain point, if you so desire.

For an extractor we would recommend a four-frame non-reversible. This would be as large as you would ever need for ten colonies, and would be a very inexpensive simple outfit.

Bees must have considerable water, but they use it in brood-rearing, no water ever being mixed with honey. Bees seem to prefer water that is briny or salty. If you locate a half-barrel close to your bees, and see that it is kept well supplied with water, you will very seldom see them obtaining water any place else. Use cork chips, or wooden floats, so that the bees can take the water readily without danger of drowning. —Ed.]

BEES AND FRUIT IN ENGLAND

BY WM. J. WOOLLEY, JR.

I am a fruit-grower on a small scale. I rent five acres of land and "let off" half of it, as I employ no help except in the summer months, and I want only 2½ acres. One acre is planted with established plum trees in full bearing. One acre I have had planted 12 months with young apple trees, and cropping in between with strawberries, narcissus, and other flowers, marrows, tomatoes, cauliflowers, etc., and the other half-acre is generally planted with potatoes, which do well there.

This last year (1913) the fruit crop in England was recorded in the trade papers as only one-fourth to one-half a crop on the average; yet in my holding, all the trees were loaded and some breaking down with the load of plums, with the exception of the Damsons, which bore only one-fourth of a crop. The trade papers mention three causes of the poor crop. 1. The fruit spurs on the trees were not well ripened, through the constant wet season of the year previous, and so were not able to carry their proper share of fruit.

2. The cold and wet period of 1913 when the trees were in bloom so that the blossoms did not set properly.

3. The attacks of aphides,etc., which were very numerous through the season.

If those were the causes, why were my trees able to carry such a crop of plums? I had the same wet weather to contend with. My answer is, the thoroughness with which the bees fertilized the blossoms. On the few days they were able to work while the trees were in bloom, the weather being so changeable, the bees did not fly far away from home, and, in consequence, the trees nearest to the hives carried a grand crop of fruit. Only one mile from my apiary an extensive fruitgrower with every convenience and appliance confessed to me that the season with him was "rotten." He did not keep bees.

Do you not agree that every fruit-grower ought to keep bees? I believe that the bees would pay the grower in increase of fruit, even if he did not reap a good crop of honey as well. I find by experience that they pay me on an average $5.00 in honey besides the good they do to the trees.

Evesham, England.

CONVERSATIONS WITH DOOLITTLE

Continued from page 90.

swarm, and then preventing after-swarming of the parent colony by placing it a foot or two away from where it originally stood, and in seven days, when the bees are flying freely, carrying it to a new stand, thus drawing most of the flying force in with the swarm, work will be resumed and continued in the supers without interruption, and the surplus be nearly as great as though no swarming had taken place. Contracting in this way throws the whole working force into the supers just at a critical time, and secures a crop of white honey that would otherwise have been frittered away by a continued effort at swarming, or used in the rearing of bees that would have come upon the stage of action when about the only thing that they could do would be to consume much of the honey previously stored, and hang on the outside of the hive during the heat of late July and early August days. All know that *white* honey brings a higher price than does the dark honey gathered in the fall, while the latter, as a rule, is just as good for winter stores. The contracting of the brood-nest, when properly done, with an eye toward securing the greatest amount of the higher-priced honey, puts this white honey in the market and the cheaper grades in the hive for winter.

Heads of Grain from Different Fields

Is a Hungry Queen More Likely to be Accepted?

I have been much interested in your account of the smoke method of introducing. I have tried it a number of times the past season, and have failed but once, and that was in the case of a double hive. Afterward I noticed the partition between the two colonies had a crack large enough so the bees of the two hives could go back and forth. Whether this was the reason for the failure I do not know.

Do you think it would make any difference with the success of the method if the queen has fasted a few minutes before she is run in? There would be a few minutes when she would be without food if she were put into a cage alone, before we could get the colony in shape to run her in. Supposing the queen is received by mail with workers which would feed her, would she be as acceptable, in your opinion, as a queen that was a little hungry? No doubt you have had experience in this. I have not, as all the queens I have introduced by this method have been queens taken directly from my own hives.

Have you been as successful in running virgin queens into *full* strong colonies as you have with fertile queens?

Randolph, N. Y., Dec. 1. GEORGE SHIBER.

[Undoubtedly the leak between the two hives was the cause of the one failure that you report in the smoke method of introducing. A fasting queen, under ordinary conditions, will be more readily received by the bees than one that has been well fed. You will find the fasting method of introducing given in Samuel Simmins' book, "A Modern Bee-farm." A description of this same method will be found under the head of "Introducing," in our A B C and X Y Z of Bee Culture. Mr. Arthur C. Miller, however, the author of the smoke method of introducing, does not believe that it is necessary to go to the trouble to starve the queen before she is given to the bees. See his footnote regarding the fasting method as given in our A B C and X Y Z of Bee Culture.

Ordinarily it is easier to introduce a laying queen than a virgin three or four days old to a full colony. But a virgin just hatched can be more readily introduced than a laying queen. But when the smoke method of introducing is used, it does not seem to make very much difference whether the queen be a virgin or a fertile one.—ED.]

The Smoke Method of Introducing Used for Years

It is several years since I adopted the method of introducing queens by running them in at the entrance with a little smoke. If the bees then kill the queen they would also kill her if she was introduced under the best caging method. F. A. HOOPER.

Four Paths, Clarendon, Jamaica, B. W. I.

[The smoke method of introducing, as applied by Mr. Henry Alley, is very old; but Mr. Arthur C. Miller's modification of the Alley plan, so far as we know, is comparatively new. You will find quite a difference between the Alley plan and the Miller method.—ED.]

Combs Built in Sections Between Shallow Extracting-Combs

In the Nov. 15th issue, p. 805, I read the article by J. E. Hand on getting bees to work readily in comb-honey supers when producing section honey. I have made some experiments along this line with frames such as are used in N supers. I fill these with sections, and the sections with full sheets of foundation; then place these in shallow extracting-supers, alternated with shallow extracting-combs, making sure that the outside frames of the super are combs. If these section frames are left a few days, as described, and just over the brood-nest, or in a strong colony, and over an excluder, the foundation will be found nicely drawn out if there is a fairly good honey-flow.

These section frames, with sections of drawn combs, can then be removed, and placed in section-honey supers, with fences between them, and then placed on any hive, when the bees will proceed to work on them at once if there is honey coming in.

I think if Mr. Hand will try this method, instead of drawing out sheets of comb, and cutting up, placing in sections, etc., as he describes, he will find the labor has been cut one-half without loss in principle.

Shellman, Ga., Dec. 6. D. W. HOWELL.

Should Winter Cases Project Below the Bottom-board?

I should like to know about using winter cases. I received one, and in putting it over the hive and leaving it an inch higher than the top of the hive it does not protect the lower part of the hive. Is it to be used that way, or should it go away down over the bottom-board and all, and an entrance cut in front?

CHARLES L. SOMMER.

North Tonawanda, N. Y., Dec. 3.

[We do not know what style of winter case you refer to; but the ordinary outside winter case that slips down over a hive will not cover the bottom-board and the entrance. The point of protection should be applied to the top part of the hive. If you are using a winter case that telescopes over the general body of the hive, it is usually advisable to remove the regular hive-cover, put on a super-cover, and then place on top several folds of newspapers, old carpeting, burlap sacks, or any kind of packing that will make a space of 1½ or 2 inches over the top of the hive and around the sides. When these are carefully tucked down, the winter case is shoved over the whole, making a nice warm enclosure over the hive on the inside. The outside cover of the hive is then put over the winter case for the winter, or it can be taken inside of a building if necessary. —ED.]

Hundreds of Acres of Sweet Clover Sown for Pasture

In the Dec. 1st issue, p. 869, I have read the article by L. R. Witherell in regard to sweet clover. This clearly proves that he is either ignorant or prejudiced as to its good qualities. For 20 years I have been advocating it as an all-round better plant than alfalfa. I can show Mr. Witherell hundreds of acres sown to sweet clover for pasture, and more being sown every year. There is nothing as good as sweet clover for enriching poor land.

Salix, Iowa, Dec. 12. LEWIS LAMKIN.

Prospects Good in Jamaica

May be GLEANINGS readers will be interested to hear what the bees are doing in Jamaica. We are enjoying the finest November weather we've had for many years, making ideal conditions for the bees. It is sunshine and showers, not two days together when the sun has not shone. The bees are working on Christmas pops (bell-flowers) and a profusion of minor bloom, many strong colonies storing well in supers, and the weakest getting enough honey to keep up brood-rearing. So favorable has been the fall weather that no drones were destroyed by the bees, so queen-rearing has gone on uninterruptedly, and fine full-sized queens raised.

Most apiarists have not had to feed an ounce of sugar; but, instead, have obtained a tidy surplus. This season is in marked contrast to that of 1912, when such wholesale losses were sustained by the flood-rains, and the crop was so much shortened.

With the bees at their present strength, or stronger when logwood opens next month, it is reasonable to expect a bumper crop and a big increase in bees to make good the losses of the past season.

The cool balmy air, soft yet bright sunshine, together with the healthy hum of the bees over myriads of wild flowers, all go to make one feel that it is good to be alive in this land of perpetual summer.

ARTHUR W. ROGERS.

Belvedere, Jamaica, Nov. 26.

Number of Colonies Needed per Acre in a Fruit Orchard

My brother and myself have about 200 acres of orchards of various fruits, and are interested in having plenty of bees to pollenize the fruit properly. There is an apiary about three-fourths of a mile east of me, and another about the same distance west, and a party in Toledo wishes to establish another on my place. I do not care to take on another business myself, but want as many bees in the vicinity as will thrive properly. Can you give me any data that will help me to decide how many that is?

Waterville, O., Dec. 22. W. W. FARNSWORTH.

[So far as we know there is no exact scientific data to determine the number of bees necessary for a given acreage of fruit trees; but we may say this, that more bees are needed in some seasons than others. For example, there may be a number of days while the trees are in bloom when it is cold, chilly, or rainy, so much so that bees can not fly. If there is only one or two flying days during the entire blooming time, obviously it will take more bees to pollinate the trees in a given acreage than if the weather is favorable for a week or ten days. On this account, therefore, it is desirable to have as many bees as you can get on the place or near it.

There is a forty-acre apple orchard about nine miles and a half north of Medina that was leased last year by Van Rensselaer & Southam. The former is an old experienced fruit-man, and he began pruning the trees, as the orchard had been neglected. He got in touch with us very shortly, and desired us to put as many bees in and near the orchard as we could spare. While there were quite a number of small apiaries in the locality, he wanted a yard of bees right in the orchard. We put in some fifty colonies of bees, and at the time he said he would be glad to have more if we could spare them, but as we had similar calls from other fruit-growers we were unable to supply them with any more bees. At the close of the season they harvested 16,000 bushels of apples from the 40 acres, and Mr. Van Rensselaer told the writer that he would not have secured as large a crop as this had the bees not been placed right in the orchard. He is a great believer in having plenty of bees close to the trees. See his article in this issue, p. 94.

To answer your question a little more specifically, we should guess that about one colony would be required to take care of an acre of fruit trees, but two or three colonies would do much better work if the weather is at all bad during the time the trees are in bloom.

We are convinced that the fruit-growers have not half appreciated the importance of having plenty of bees on the place. We are sending you a copy of our journal, GLEANINGS IN BEE CULTURE, for Aug. 15, and refer you to page 561 for the testimony of the Repp Bros. regarding the value of bees in an orchard. You will find further particulars in an article about these men in the *Country Gentleman* for May 24. While you are doubtless familiar with their fruit-growing operations, we suggest that you write to them, and ask how many bees they consider it necessary to have per acre.

There is another fact that might be somewhat interesting to you, and that is this: Last summer we visited the bogs of the Cape Cod Cranberry Company, of Boston, Mass. The president of this company was very desirous that we should come and visit his place, which we did. He had discovered that, when they were growing cranberries in a very small way, the bees in the woods were sufficient to take care of the work of pollinating the plants, but when they began to increase their acreages of cranberries, then something was wrong, and they were not able to get the berries. He finally discovered that, by putting bees around the bogs, he was able to get the usual crop. He showed one bog of some ten or fifteen acres that had only about four or five colonies of bees. It was very evident, he said, that the fruit was much more abundant near the bees, and the yield began to taper off the further the plants were from the hives of bees, showing that the bees went to the nearest blossoms first. In other words there were not nearly enough bees to take care of the entire bog. We should judge from what we saw there that it would take anywhere from ten to fifteen colonies, or about a colony to the acre of cranberries.

For your two hundred acres there, it would seem as if you ought not to have less than 200 colonies, and we might suggest that it would be better to have these scattered over the orchard. You will be surprised in the increase in the amount of fruit if you will increase the number of bees. We have seen so many examples of remarkable results from such work that we wish to suggest that you get as many bees on the place as possible.—ED.]

Bee Space on Both Sides of Ventilated Escape-board

On page 887, Dec. 15, is a photo of Hodgson's escape-board. I made two Labor Day to try out. They are all right. I want no others, but I made them of copper wire, put the escapes with opening toward the outside, and had a bee-space on *top* of the wire as well as *under* it. I made the bottom piece 1½ inches wide, ½ thick; the top piece 1 x ½ inches, and put the wire between. This makes a much stronger and better job—no brace combs. The bees go out much quicker than in the wooden ones.

Lestershire, N. Y., Dec. 29. JOHN H. RISING.

[We believe Mr. Hodgson also uses a bee-space on both sides of the wire cloth. Those which we have made in an experimental way were so constructed—viz., with a ⅜-inch cleat above and below the wire. —ED.]

Winter Disturbance

We have been thinking of storing our bees in a shed where an auto is kept. Do you think the fumes from a running car would be injurious to the bees? The car will be running from time to time.

Norris, Mont., Dec. 1. HADZOR BROS.

[We do not believe that the going and coming of the automobile will interfere with the wintering of the bees. They will soon get used to it, so that, if it should arouse them the first time slightly, they will pay no attention to it later. We presume the shed is opened up in such a way that the bees would be protected from the prevailing winds.—ED.]

An Explanation

There is one item in the article by H. H. Root in the Dec. 1st issue that I do not want to leave as it is, and that is the statement of our honey crop for 1913. It was my intention that in connection with that report should go my statement that I knew of seasons when I never wet the extractor at all, or during the season did not wet it with white honey. I have blamed others, and justly, for giving one-sided reports, and I do not want to be an example in this direction myself.

Brantford, Ont. R. F. HOLTERMANN.

Our Homes

A. I. Root

Thou shalt love thy neighbor as thyself.—MATT. 22:39.

Oh how I love thy law!—PSALM 119:97.

This is the condemnation, that light is come into the world, and men loved darkness rather than light, because their deeds were evil.—JOHN 3:19.

I have lately been having some business experiences that tempted me to think that a great part of the world (but not *all* the world, thank God) have just now a sort of craze to raise prices on every thing. Sometimes I have been tempted to think they tuck on a bigger price when I come around, because they have got it into their heads that I have plenty of money and am so good-natured that I would not make a kick any way; and as I got to studying over the matter—yes, this very morning—I said mentally, "Oh how I love good honest people—people who *really* love their neighbors *almost* as well as themselves!" I did not put it as it is in the text, "as thyself," for I feared that *that* would be expecting too much of any of us, good or bad; and then I reflected that if there were not any greedy or grafting people in this world we would not fully appreciate the honest ones. Yes, thank God, there *are* people (and quite a lot of them) who do not charge as much as they really ought to. I have in mind one good friend who is a sort of drayman who delivers goods from the railway station and otherwise. Several times I have laughingly told him that he did not charge *enough* for his bother and trouble. Now, this man has lately united with the church, and he began putting his Christianity into practice by just this sort of thing—working so cheaply that many times his customers laughingly remonstrated with him. Perhaps the dear old soul will see what I am writing on these pages. Well, while this whole thing was passing in my mind I thought of David's speech or *prayer,* or we might almost call it a prayer, "Oh how I love thy law!"

Dear friends, I am having a lot of kind words. I think they come every day of my life, and sometimes they seem so extravagant that I hesitate to put them in print. Right before me is a letter that caps them all, and it comes from a man away up in public service. He is president and general manager of an electric railway company in a city of something like 30,000 people. You will note his reasons for having his name and address kept out of print. His reasons, briefly summed up, seem to be that he is already having about as much trouble in his efforts to encourage righteousness as he can well bear; and if I should give his name in full, and tell *where he lives,* he might have more trouble yet.

His request for a French bee-journal has been complied with; and may the Holy Spirit be with him and sustain him in his battle for the right, and may God be praised for the victories that have already come in consequence of the brave standout from one single individual with heavy responsibilities on his shoulders. Will the readers of GLEANINGS unite with me in a prayer for the writer of the letter below?

I wonder how many large cities in this nation are being managed as outlined below.

The A. I. Root Company:—I read French, and would appreciate it very much if you could send me a copy, even if it is an old one, of a French bee paper corresponding as nearly as possible to GLEANINGS. You must have a number of these among your exchanges. If I like such a paper, I am considering subscribing for it.

I am also enclosing a little expression of appreciation of Mr. A. I. Root, which, perhaps, you would like to print for your own good. If you do, however, please leave out any reference to the city mentioned or the author, as I am not looking for any more trouble than I already have.

AN APPRECIATION.

For the last six years I have been reading GLEANINGS, and I appreciate it more every year. Because I happen to be the head of a public-service company which, like all other companies in the same line of business, seems to be continually embroiled in strife and trouble with politicians, I could not understand how it could be possible for any business to exist where there seemed to be peace and happiness and a spirit of Christianlike tolerance and forbearance. Why, in the bee business even rival bee-papers speak kindly of each other—a condition which is entirely too good to be true. And then all of the bee-papers interpolate their reading-matter with the real spirit of Christianity, and with talks on temperance and kindred subjects. I am afraid that at first I read GLEANINGS mainly out of astonishment and curiosity. I have kept bees in a small way, and have gotten a little honey every year; but I have a greater satisfaction than the amount of honey I get in the knowledge that I am engaged in a pursuit which seems to be entirely free from petty jealousies and personal strife. I have particularly enjoyed Mr. A. I. Root's temperance talks—not that I am a teetotaler, for I was born and brought up in a wine-growing country of Europe, and I have a sort of sympathy for the product of the grape; but I admit that every single thing that Mr. Root says about intemperance, whisky, and the whisky gang is absolutely true. Placed in such a position as mine, with hundreds of men in my employ, I know the evil of intemperance among workingmen. Several years ago, about the time I first took GLEANINGS, I issued an order forbidding all employes to enter saloons or to take any intoxicating liquors; and I am inclined to credit Mr. A. I. Root's talks with stiffening my backbone for the purpose. We had to lose some good employes before they realized I meant it; but others took their place, and by strictly enforcing this rule we to-day have an organization of employes in our electric railway, electric light, and other public service, which is probably better emancipated from the curse of intemperance than any other similar organization in the country. The saloon element rose up in arms against such an order by boycotting my company. They boycotted the cars, would not use electric light, would not have any dealings with the company unless they were absolutely compelled to. But we stuck to the order, and have prospered in spite of the opposition of the saloon element. This same saloon organization controls the politics of our city, and they elect their own mayor, sworn to enforce the laws, and he enforces them so well that saloons are open day and night, Sundays, holidays, election days, or any other day. On any pleasant Sunday or holiday, citizens may have the pleasure of seeing "His Honor" (?) seated at a round table in the back room of some saloon, guzzling beer with his boon companions. You may rest assured that that kind of mayor has used every effort in his power to annoy a public-service company, so utterly regardless of the ordinary amenities of politics as to dare oppose the gang in power—the gang in this case being the saloon men. Naturally there has been a time in this city about as cheerful and entertaining as the proverbial Donnybrook Fair. The brewers, the saloon men, and their friends are a crafty lot of individuals. Few people realize the enormous power of the liquor element in politics. If they did, the whole gang would be wiped out in one election. Some very level-headed thinkers have been of the opinion that much of the hue and cry against public-service corporations has been skillfully engineered by the liquor interests to draw attention away from the ulcer of their own existence. In the midst of this turmoil, and the mud of political campaigns involving saloon men, it is and has been a pleasure to receive GLEANINGS twice a month, and go through its pages reading of the clean, honest business conducted in a clean and honest way, and capped by the kind observations and comments of your Mr. A. I. Root.

FROM NEAR "THE LAND OF THE MIDNIGHT SUN;" A VERY KIND LETTER FROM A NORWEGIAN SCHOOLTEACHER.

Dear old Friend:—Of course you have long since forgotten me; but I often think of you, especially among my bees, and every time when GLEANINGS flies into my house; also among my poultry I think of you.

Since you are in my eyes an old brotherly friend, whom I should so like to see, I will make bold to ask you a favor. Many of our newspapers speak of a new plant as an exceeding blessing to manhood, going to supplant the potato. They call it dasheen. I. S. Young told me of you. He is dead now. Now, I should like you to send me a little seed, and at the same time tell me how it is planted, and when and how it is treated, and when it is ripe. The newspapers say not only the root is excellent, but also the leaves, stewed like salad. Both also are good for cattle. Are the roots cooked or fried? or both, like the potato? The bags you put it in must be strong, so that the seeds may by no means be mixed up.

You know schoolmasters don't earn much, and I have eight children to educate, so my little part of Norway (exceedingly picturesque) costs me only 280 English shillings ($70.00), and consists of wood, mountain precipices, debris, and oak roots; but now I have cleared it myself, with the assistance of my wife and children, and have two fruit trees and ever so many bushes and a kitchen garden. If what these three American plants or grasses promise holds good I might also easily have a cow (or even two), which would be a grand thing.

My three oldest sons go in for the agricultural line, so you see what way my interests go along with teaching children, which is by far the most beautiful and blessed calling of all in life.

My oldest son is just now with two empty hands, but a life and heart full of good will; and after having passed his agricultural examinations with the very greatest distinction, he bought a farm of his own; and if now these American plants hold good, you know what a blessing it would be to him as well, if I give him part of what you send me. Of course, I shall pay your outlay. His farm cost 24,000 English shillings ($6000), and he has but 3000. Fancy, then, how the poor fellow will have to work.

Perhaps you think, like others, that Norway is a country high up under the pole, with "ice bears" in the streets. Well, if you do, to undeceive you I will tell you that here in the South our gardens are as full of the most splendid apples, pears, plums, etc., as ever you saw, and myself and another man here get ripe grapes and peaches and apricots every year on free land; therefore I don't think you need fear your seed would not thrive. To-day, Sept. 12, we have 73 degrees Fahr. in the shade (no sun in the sky to-day, otherwise it would be still warmer), and the water in the "fjord" (bay) is 72 Fahr. It would give your heart joy to see how happily and tidily people live in their little houses, and how the weest spot of ground among the mountains and rocks, by means of stone walls, is made into a garden with fruit-trees and flowers, often no bigger than 5, 6, or 8 feet square, and even less than that. Indeed, so rocky is this part of my glorious fatherland that there is not a single garden about the town but is now, by means of stone walls, built up 15 feet high to get a patch of garden no bigger than the floor of your own dining-room. You never saw the like; but if you once have such a little spot, whatever you plant grows most beautifully, and the steep mountains around absorb every ray of the sun and make it very warm, day and night; and as the nights are very light even here in the south you can, if you will strain your eyes, read your newspapers at twelve and one o'clock at night in your garden about the middle and end of June. The plants grow day and night as well. Such a country, with so much stone and so little earth, must needs be poor; but as the nation is enlightened and gifted and pious and striving, you never see extreme poverty as you see in the rich countries.

I do believe the word of God thrives nowhere so well as in the valleys of Norway, and perhaps you will think I speak right when I tell you of our missions among the heathen. We carry on missions in Zululand, Madagascar, Santhatistan, China, besides among the Jews, and a minor mission in our own country. Well, the statistics some 20 years ago (and I feel sure it is the same yet) said that Norway alone (2½ millions of inhabitants) gave as much to the mission as Sweden (5½ millions of inhabitants) and Denmark (2½ millions), and half of Finland (2½ millions of inhabitants), put together. May I not be proud of such a fatherland, for Sweden and Denmark, at least, are ever so much richer countries than Norway. Norway is, perhaps, the most democratic country of Europe. Indeed, since 1827, nobility and gentry are forbidden by law. We are Lutherans; and in all the country there are but a hundred Jews or so, and but 1100 Roman Catholics, which is a most happy state of affairs.

Formerly our people were very much given to drink; but during the last thirty or forty years the nation has made such violent efforts against this unhappy habit that there is now but one country in Europe that consumes less spirits—viz., Finland. I am more than happy to say that, like their father, my three grown-up sons (28, 27, and 19 years) have not been under the influence of wine a single time in their life, which is much; for when young fellows come together in Norway their first thought is whisky. I think it is all owing to a tale out of my own brave, unselfish father's life. He distinguished himself so much serving as a soldier that two lieutenants and one captain in the army offered to send him to the military high school some years and make a lieutenant of him. He was as poor as a church mouse, and would have been ever so happy to accept this grand offer; but he was engaged to my sweet mother; and because he was the man he was, he saw a chance to marry pretty soon, and said "no," much to his regret afterward, when we children came. Well, one of these lieutenants had confided to him a most exceedingly important key. What should happen? My father attended a party and got intoxicated; and, going home in the pitch-dark night, heard the key falling down somewhere as he pulled out his pocket-handkerchief. He lay down in the greatest anxiety, groping for the key, when a man came that way—the very lieutenant who had given him the key, and would have paid for him for years. He lighted a match and helped father, who felt nearly sober from fear and despair. Of course, father expected to be scolded and arrested, and was miserable for days. But the lieutenant (God bless him for his heart and deep understanding of his fellow-man) gave him back the key and never uttered one word of anger or reproach. My father then swore a holy oath. "It was and is to be the first and last time in my life," and he kept his word till he died, 72 years old, as an "over custom-house officer," as we call it, in the king's service. This tale and his long life of sacrifice for his children (we were eight—*i. e.*, seven sisters and a boy) made such an impression on me, his only boy, that already, 14 years old, it was as clear as day on my mind that I could not live through the day when my father should be compelled to lower his eyes before the world for the sake of his boy. And as my father kept *his* promise holy, I have kept *mine*. And now my three boys have stood out brave after us two, although they have been tempted enough. I have not been able to give them pocket money worth speaking of. Well, at a party some young fellows, some 20 and 22 years old, laid 12 English shillings on the table to my boy if he would drink a glass of pure whisky. He did not touch it.

Bees are doing well this year. In my district we have the weather to rely on. Once I put my hives on the scales every day a week. My best colony once carried in 8 pounds.

My parents allowed me to keep hens, as I was but seven years old, and I have gone on with them since then. I thank my prudent parents in their graves; for, thanks to this intense love of animals, which sprang up then (I have or have had hens, geese, turkeys, ducks, canaries (hatched them), sheep, goats, doves, rabbits, peacocks, swine, and even once for some weeks a horse). I have been sticking to my home and poultry-yard and garden every leisure hour of my life. You should see me and my boys mining, shooting, and building terraces in the rocks every spare hour, and digging and manuring the garden. Well, the trees are yet small, but yet every inch of the floor of a middle-sized room is to-day, Sept. 22, covered with apples, and the pears are yet on the trees. There are joys and blessings in the footsteps of work.

I believe mostly in hens and geese, and wish I could afford to buy a reliable incubator that would hatch these two sorts of eggs; but I can not nor dare buy one for fear it might be a failure. I once made bold to buy a machine for grinding or cutting bones for my poultry; but it was quite an impossible thing, and I had to throw it away as rubbish. Incubating under hens is all right, but it can not come to much, which is a pity for a man without neighbors, and with a place where chickens of all sorts may roam about as much as ever they like. There is a rivulet going through to a little pond in my garden.

If I get a photo of "Min lill vea imellanbergan" (my little nook among the rocks), as it runs in a most beautiful Swedish song, I shall have pleasure in sending you one. Perhaps you will shudder to see people building their houses like birds' nests among the precipitous rocks; but we live happily there, I assure you, and our animals with us; and such beautiful views, your heart would leap with joy to see them, and you would fold your hands in prayers and thanks to the great Lord who made this grand earth. You should see the lovely farm my boy has bought, and will now try to hold good with his two empty hands. A workman in Norway lives more beautifully than a prince in foreign countries as regards the view. I am now trying to get him some calves and one cow, for he has ever so much hay, poor boy, and not a single cow. Now you are tired of me long ago; but you see you talk to me in every GLEANINGS, and I never speak to you. My motto has been all through life, "All or nothing," a whole man in every thing, or, as a Norwegian saying runs, "Not det skal vere jul, skal det vere jul," *i. e.*, when it is to be Christmas, then it is to be Christmas—*i. e.*, nothing by halves. I shall wait ever so long, perhaps, before I write to you again; but if I do write, I will send you only two lines. If you send the seed I shall have to thank you in my own name and that of my noble boy who is fighting his battle like a man. It is hard at times; but upon the whole I know for certain, for I have seen much of the world—one year at Oxford, on year at Paris. and two years and a half as a teacher in a German grammar school near Dresden, Saxony, living in such a poor country. If my boy could get 2000 shillings he could buy a magnificent island covered with plenty of wood and with excellent pasture, only 15 minutes from his home—an island which it took me fully an hour to row around in a boat this summer; so you see land may be cheap in Norway, and a man may have his chances even here; but what is the use of it when money is so scarce!

HAROLD HOVIND, M. A.,
of the University of Christiania, Head Master
of the High School of Tvedestrand.
Tvedestrand, Norway, Sept. 15.

Our readers will notice that we print the above letter substantially as it came. Our good friend's phraseology, coupled with his many kind words, makes it seem almost as if we were visiting in and around his northern home. If I were not so well along in years I should be tempted to take a trip to Norway. It seems he was a friend and acquaintance of the late Ivar S. Young, the big Norwegian who paid us such a friendly visit many years ago.

My good friend, I can not understand why your bone-cutter was a failure unless it is because it is too hard work to grind bones.

I would not advise you to undertake to hatch hen eggs and goose eggs at the same time together. Although it has been done, there are several reasons why it does not pay. The manufacturers of our best incubators do not recommend it.

If I am correct, your locality is one of the best spots on earth to see real high-pressure gardening. May God speed you, not only in agriculture, but in temperance, righteousness, and in spreading the gospel

High-pressure Gardening

PRODUCER AND CONSUMER — SAVING YOUR OWN SEED.

Just about a year ago I wrote about my troubles in getting seed of sweet corn to plant here in Florida in December. Before I could get any I sent to three different seed-houses. The first, after considerable delay, said they hadn't yet got in their seed; the second didn't list the corn (Golden Bantam) I particularly wanted; and finally I sent to one of the great seed firms in the North, and had my order promptly filled; but although the Bantam came up, almost every seed of the Black Mexican, in a row close by, gave only here and there a plant. I advised the seed firm to look after their Black Mexican, and test before time to plant in the North. Never a word in reply; but several of our readers called my attention (as you may remember) to the fact that the Bantam, not being a sweet corn, is more resistant to cold, etc. I accepted this explanation, but yet I did not quite excuse the seed firm for entirely ignoring my courteous letter. I finally succeeded in growing a fine lot of green corn. *The neighbors* said that it was the best they ever ate; but on account of delays I have mentioned, it matured just *after we* went North, about April 20.

Now we are ready for what I have to tell you. When our nice sweet corn was at its best in Ohio (that I have told you about) I tied strips of cloth to certain stalks to be reserved for seed; and when the ears were finally mature I dried them out back of the stove, and brought three kinds down here—Bantam, Mexican, and Evergreen, planting all three side by side in November. All three came up, every kernel, apparently Black Mexican just as well as the Bantam. How much is it worth, friends, to have *good seed* that you *know* will grow? Let us go a little further.

For some time past I have got into the habit of using more seed than is needed, proposing to "thin out" the plants at the proper time; but there are *three* serious objections to this plan: It takes a lot of time; it is often neglected; and, besides, the small plants are hindered by coming up too thick. Down here we plant in drills because the fertilizer can be worked in so much better with a hand cultivator. Well, with my own good seed I placed just one grain of corn to about every foot of drill; and as I look out of the windows while I write I see my corn about a foot high, no crowding, and no *missing* hills; and it is so easy to hoe and cultivate that not a weed can be found. Don't you think that "growing your own seed" will be another "short cut" between "producer and consumer," and a great saving of loss and disappointment? The manager of the great onion-farms in Ohio declare they *must* grow their own onion seed. They get far *better* seed, and seed they *know* will grow.

DASHEEN—WHERE CAN THE SEED BE PURCHASED FOR PLANTING, ETC.?

So many are inquiring, I have thought best to copy, by way of answer, the advertisements below, taken from the Florida *Weekly Grower* (Tampa, Fla., $1.50 per year).

TRINIDAD DASHEEN. — Edible, wonderful yield. Very decorative. Send 25 cts. for sample tuber and directions. DR. H. A. SMITH, Samville, Fla.

DASHEEN FOR SEED FOR SALE.—$4.00 per bu.; quick delivery; choice stock.
MRS. R. P. BURTON,
800 So. Willow Ave., Tampa, Fla.

THE DASHEEN.—The South's substitute for the Irish potato. Very productive. Have yields up to 500 bushels per acre. Successfully grown from the Carolinas south. Plant here beginning February 1, and until April further north; seven months to mature. Cultural directions sent with seed; cooking directions with cooking tubers. Seed $4.00 per bushel, f. o. b. Write for prices on five-bushel lots or over. Cooking tubers, $2.00 per bushel f. o. b. (Reference, *The Grower.*)
THOS. PORTEUS & SONS,
Rt. 3, box 126, Ybor City, Fla.

Besides the above, Crenshaw Bros. Seed Co., Tampa, in their new seed catalog advertise "1 lb., 25 cts.; per bushel, $4.00." Of course, the above are all small tubers for planting except where noted. The big "corms for cooking" are cheaper. From Brooksville I have an offer as below:

DASHEEN SEED.—$3.00 per bushel; $2.50 in five-bushel lots or over. GEO. KITCHEN, Brooksville, Fla.

DASHEEN TUBERS FOR PLANTING OR FOR TABLE USE.
Two of my neighbors, Mr. Ault and Mr. Harrison, have a limited amount of dasheen which they grew from seed I furnished, which they offer as follows:
Single pound, 10 cts.; 10 lbs., 80 cts.; 25 lbs. (½ bushel), $1.75. The above are for small tubers for planting; larger ones for table use, one-half above prices. Your postmaster can tell you how much to send in addition to the above for postage if wanted by parcel post. Address Arthur E. Ault or C. L. Harrison, Bradentown, Fla.

BUYING LAND IN FLORIDA; SOME "BOILED DOWN" COMMON SENSE IN THE MATTER.

I clip the following from the *Times-Union:*

> Don't buy land till you have actually seen it in person, and made the acquaintance of a few people (in the vicinity) who have no land for sale.

I have two swarms of bees, and took off 250 lbs. last season.
Grand Haven, Mich., Jan. 15. I. N. TUBBS.

Ellis Hall, Athens, Ohio, where the Ohio convention is held. See program below.

Convention Notices

The regular meeting of the Kansas State Beekeepers' Association will be held at the Commercial Club Rooms, Topeka, Feb. 26, 27. All persons, whether beekeepers or not, are cordially invited to attend. The meetings will close with a banquet on the afternoon of the 27th.

Topeka, Kan., Jan. 20. O. A. KEENE, Sec.

The annual meeting of the Pennslyvania State Beekeepers' Association will be held in the Capitol building, Harrisburg, Pa., Feb. 20, 21, 1914. It was decided to hold the meeting in Harrisburg on account of train service, and the city being more centrally located. A good program is prepared. Everybody welcome. H. C. KLINGER, Sec.

Liverpool, Pa., Jan. 20.

A district beekeepers' convention will be held in the county council building, London, Ont., Feb. 12 and 13, with the following program:

THURSDAY.

1:30 P. M.—The use of steam in the workshop, Denis Nolan. Wintering Bees, James Armstrong, Cheapside.

7:30 P. M.—Marketing honey, Prof. Pettit, O. A. C., Guelph. Spring Management, John Lunn, Fingal.

FRIDAY.

9:30 A. M.—Extracted-honey production, R. F. Holtermann, Brantford. Queen-rearing, Wm. Elliott, Adelaide.

1:30 P. M.—Beekeeping Appliances, W. A. Chrysler, Chatham. Question-drawer, John Newton, Thamesford.

A cordial invitation is extended to every one to come and make this a good convention.

Lambeth, Ont., Jan. 20. E. T. BAINARD.

PROGRAM OF THE OHIO BEEKEEPERS' CONVENTION TO BE HELD IN ELLIS HALL, OHIO UNIVERSITY, ATHENS, FEBRUARY 12, 13.

THURSDAY, 1:00 P. M.

Address of welcome, Dr. Alston Ellis, President of Ohio University. President's address. Report of secretary. Report of Treasurer. Report of Chief Inspector of Apiaries. "Swarm Control," O. J. Jones, Urbana. "The Swarming Instinct," E. R. King, Creola. "Soft-candy Feed," Dr. Burton N. Gates, Amherst, Mass.

THURSDAY, 7:30 P. M.

Music. "Short Cuts in Preparing for the Honey-flow," H. H. Root, Medina. "Apicultural Progress with Plans for 1914," Dr. Burton N. Gates, President National Beekeepers' Association and Prof. of Beekeeping in Massachusetts Agricultural College.

FRIDAY, 9:00 A. M.

Music. "Wax Rendering and Refining," D. H. Morris, Springfield. "Sac Brood," J. E. Venard, Wilmington. "Some Recent Findings in Brood-disease Suppression, Dr. Gates. "Producing a Crop of Extracted Honey," J. F. Moore, Tiffin.

FRIDAY, 1:00 P. M.

"A Hive Standard," Dr. Gates. "Short Cuts in Extracting Honey," H. H. Root. General discussion.

Athens, O. W. A. MATHENY, Sec.

NATIONAL BEEKEEPERS' ASSOCIATION CONVENTION, ST. LOUIS, MO., FEBRUARY 17, 18, 19, 1914.

The annual convention of the National Beekeepers' Association will convene at the Planters Hotel, St. Louis, Feb. 17, 18, 19, 1914. The first session will be held Feb. 17 at 10 A. M. A large hall and office rooms have been provided at the hotel.

The following rates on the European plan have been granted to the beekeepers and their friends:

FOR ONE PERSON.

Rooms without bath, $1.50 to $2.00 per day; rooms with bath, $2.50 to $5.00 per day.

FOR TWO PERSONS.

Rooms without bath, $2.50 to $3.00 per day; rooms with bath, $3.50 to $7.00 per day. For each person over two in a room, $1.00 additional.

The Planters Hotel is one of the finest in the city, and guests will be nicely taken care of.

It is hoped that this convention may prove one of our old-style gatherings, where we meet many of our old friends and make many new ones. All meetings will be open to all the beekeepers who will come, whether members of the Association or not.

What is needed is a large attendance. Let the beekeepers rally and make this a rousing gathering, such as we had in 1909, during the World's Fair. Bring your wife and daughters. St. Louis will try to make it pleasant for all.

There will be rooms in the hall for exhibits if any manufacturers or beekeepers wish to show, or adjoining rooms can be had if desired.

ROBERT A. HOLEKAMP,
President St. Louis Beekeepers' Club.
4263 Virginia Ave., St. Louis, Mo.

PRELIMINARY PROGRAM

The headquarters of the National Beekeepers' convention will be Planters Hotel, where the meetings will be held. Those wishing hotel reservations may request the Secretary, Mr. E. B. Tyrrell, 214 Hammond Bldg., Detroit, Mich., to assist them.

Some of the peculiar features of this convention may be outlined. Arrangements are pending for the use of the new moving-picture film relating to beekeeping. The showing of this film will possibly be in a moving-picture theater.

An attempt is being made to procure ample space for displays of manufacturers, dealers, and inventors of new appliances. Those intending to make displays should communicate with the secretary.

The meetings of the convention will be divided as found requisite, devoting time to the reading of the numerous important papers as well as to the transaction of business by the delegates.

It may be announced to the delegates, however, that a number of vital and important problems confront the Association for action. Every affiliated society should, if possible, be represented by a delegate. Otherwise send communications and instructions to the secretary.

The program as announced below is preliminary, and is subject to change. An effort has been made, however, to secure the very best talent available in the country and abroad. In the absence of authors of papers, the contributions may be read for the writers. Any suggestions or additions will be appreciated.

TUESDAY, FEBRUARY 17.

9:30, opening session. Seating of official delegates. Appointment of committees as well as routine business will be prosecuted in due form. "Suggestions for the Betterment of the National," Editor E. D. Townsend, Northstar, Mich.

1:00 P. M. Session for discussions. (Since the program is constantly growing, final arrangements are not yet possible. The papers offered are, therefore, grouped and listed below.)

7:00. Business session.

8:00. Lectures with the lantern.

WEDNESDAY.

9:00 A. M. Business session, with papers as time may permit.

1:30 P. M. Short business session.

2:00. Discussions and papers.

7:00 P. M. Business session.

8:00. Lectures.

THURSDAY.

9:00 A. M. Business session, followed by papers as may prove possible.

2:00 P. M. Closing session. Final adjournment is subject to the business program.

PROGRAM OF PAPERS AND CONTRIBUTIONS SUBJECT TO ARRANGEMENT.

Apicultural Education and Promotion.—"The Question of Apicultural Education," Prof. Morley Pettit, Guelph, Ontario, Canada. "Developing the Industry," Mr. Frank C. Pellett, Atlantic, Iowa. "Modern Business Methods Applied to Beekeeping," Mr. F. B. Cavanagh, Hebron, Ind. "Organization of the Beekeepers," Mr. Jenner E. Morse, Saginaw, Mich.

The Queen Business.—"Direct Introduction of Queens," Mr. J. M. Buchanan, Franklin, Tenn. "Selective Breeding," Mr. George B. Howe, Black River, N. Y.

Beekeeping by Localities.—"New Jersey Beekeeping," Prof. T. J. Headlee, New Brunswick, N. J. "Honey Resources of New Jersey," Mr. E. G. Carr, New Egypt, N. J. "Californian Beekeeping Up and Down to Date," Mr. J. D. Bixby, Covina, Cal. "Beekeeping in Southern California," Mr. Homer Mathewson, Binghamton, N. Y. "History of Beekeeping in California," Mr. J. E. Pleasants, Orange, Cal. "Development of Apiculture in Oregon," Prof. H. F. Wilson, Corvallis, Oregon. "Beekeeping in Europe," Mr. C. P. Dadant, Hamilton, Ill. "Making a Market for Five Hundred Cars of Western Honey," Mr. Wesley Foster, Boulder, Col.

Wintering.—"Building the Perfect Bee-cellar," Mr. E. S. Miller, Valparaiso, Ind. "Humidity in the Wintering of Bees," Dr. E. F. Phillips, Washington, D. C. Others to be announced.

Special and General Subjects.—"Restoring the Soil Fertility and Producing Honey," Dr. H. A. Surface, Harrisburg, Pa. "The Secretion of Nectar," Dr. F. W. L. Sladen, Ottawa, Can. (Subject to be announced), Mr. J. J. Anderson, Salem, Ida. "Moving Bees from the North to the South for Increase," Mr. E. R. Root, Medina, O. "Beekeeping as a Money-making Proposition," J. J. Wilder, Cordele, Ga. Subject to be announced, Prof. Wilmon Newell, College Station, Tex. "Automatic Recording Instrument," Prof. C. E. Sanborn, Stillwater, Okla.

Remember there are other papers to be presented, but which can not yet be announced.

All interested in bees, especially ladies, are cordially invited to attend the meetings. The sessions are open to the public. Business sessions, however, are participated in only by delegates.

Amherst, Mass. BURTON N. GATES, Chairman.

Kind Words from our Customers

THE MISSION WORK AMONG THE HIGHLANDERS OF KENTUCKY.

Among the many things I have to thank God for is the one of being in touch with the great and good men and women of the present age. Before I submit a "kind letter" from one of these I want to introduce him by an extract from a sermon by DeWitt Talmage entitled "Bloody Breathitt."

Many years ago a soldier in Morgan's Confederate army rode over the mountains of the South. There for the first time he came in touch with the misery and ignorance and the nobility of the mighty Highlanders. After the war was closed, this brave soldier of war entered a theological seminary and became a soldier of the cross. Called to one of the chief pulpits of Louisville, he felt that barrack duty was not the place of honor. He longed for the picket line. He wanted to fight at the front, as he did in Morgan's brigade. Called to be a synodical missionary, at once he accepted the appointment.

As the synodical missionary, his thoughts immediately turned to the place of the greatest want and wretchedness, to the Highlanders of the mountains. He organized church after church. He sent missionary after missionary into these hills. Then the synod met and began to count its money. Little money was there. Then the officers of that synod ordered this synodical missionary to retrench, and not to build so many churches and schools, as they could not afford to pay for them. Then a wonderful thing happened—wonderful because it was so simple in a man of great faith.

Doctor Edward O. Guerrant resigned as the synodical missionary. Before that synod he uttered these words: "Brethren, if you can not afford to pay for the schools and churches and the missionaries for the poor Highlanders, God can pay for them." Doctor Guerrant went back to his home in Wilmore, Kentucky. There he knelt and asked God for help. The money commenced to pour in. Church after church has been established. School after school has been built. Missionaries after missionaries have been gathered for these fields. The orphan children were gathered into a home. Though wonders have been accomplished by this man of prayer, yet only the outer edge of the harvest has been gathered.

My Dear Mr. Root:—My friend and neighbor, Mr. DeVault, takes your interesting magazine, and was kind enough to let me read your last number, and especially your article on the sorrowful condition of the poor people in New Jersey, etc. I am glad that *such* people have such a friend, and hope that God will raise up many more. I take pleasure in enclosing you some information of another class of our poor countrymen, who, though poor, are not degenerate, and still retain many of the noblest traits of their ancestors. Gen. O. O. Howard was my friend, and twice honored us by visiting our home in Kentucky, and traveled with me to many of our missions among the Highlanders. If I were at home in Kentucky I should be very glad to send you his graphic account of his tour among the Highlanders. I am spending a few months here, during our cold weather in Kentucky.

With assurances of my kindest regards and best wishes, and begging an humble place in your prayers, I am sincerely

Your brother and servant, EDW. O. GUERRANT.

Gleanings in Bee Culture

VOL. XLII. FEB. 15, 1914. NO. 4.

POLLYANNA
THE GLAD BOOK

By ELEANOR H. PORTER, author of "Miss Billy" and "Miss Billy's Decision;" illustrated, cloth-bound, $1.40 postpaid.

"Enter Pollyanna. She is the most irresistible maid you have met in all your journeyings through Bookland. She is so real that you forget that she is a story girl. After the first introduction you will feel that the inner circle of your friends has admitted a new member. A brave, winsome, modern American girl, Pollyanna walks into print to take her place in the hearts of all members of the family."

Twelfth Printing

Read some of the press comments:

"Pollyanna is the 'gladdest' book that was ever written. It is of more real value than any thousand sermons to which I have ever listened."—*Passaic Daily News.*

"It is a book that charms at once by its style, and delights by its character-drawing and the interest developed by the story."—*The Boston Journal.*

"Pollyanna is a delightful character, and the book refreshingly natural."—*Cedar Rapids Record.*

Premium Offer

Send us two new yearly subscriptions to Gleanings in Bee Culture with remittance of $2.00, and we will send you postpaid as premium a copy of "Pollyanna."

A copy of "Pollyanna" for TWO NEW subscriptions to Gleanings in Bee Culture at $1.00 each. (See Mr. A. I. Root's write-up of this book on page 155 of this copy of GLEANINGS.)

The A. I. Root Co., Medina, Ohio

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.
H. H. ROOT, Assistant Editor. E. R. ROOT, Editor. A. L. BOYDEN, Advertising Manager.
A. I. ROOT, Editor Home Department. J. T. CALVERT, Business Mgr.
Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLII. FEBRUARY 15, 1914 NO. 4

Editorial

INDICATIONS for another good honey year are exceedingly favorable throughout the country. Snows and rains have put the soil in fine condition for the clovers. Abundant rains in California practically assure a sage crop.

A NEW WAY OF MAKING BEE-CANDY FOR WINTER FEEDING.

IN this issue, p. 141, our correspondent, Mr. A. V. Small, calls attention to a very simple and what we believe to be a very feasible plan for making bee-candy for winter feeding. We hope some of our readers whose colonies may be running short will make a trial and report.

SIMPLIFYING OUR NOMENCLATURE.

THE suggestion comes from Dr. Miller, through the Dadants, that in the future we write the words " foul brood " as one word, " foulbrood." We entirely agree with the suggestion; and the very fact that we have made as one word for the last two years such words as beehive, beehouse, beekeeper, beekeeping, beemaster, beesting, and beeswax, consolidating them as one word, makes it easy for us to adopt foulbrood.

FURTHER PROSPECTS IN CALIFORNIA.

REPORTS continue to come in telling of the amount of rainfall in California. The number of inches varies according to the particular locality, of course, but there is no doubt that prospects on the coast are brighter at this time than they have been for a good many years. Most of the rain, too, has " soaked in." The following from C. H. Clayton, at Los Angeles, is indicative of the tenor of the reports in general.

> We are having fine growing weather—as fine as we have even seen at this time of the year. Last year at this time we had 2.95 inches of rain. *This* year to date we have had over 15 inches.

ARTIFICIAL SUBSTITUTES FOR NATURAL POLLEN.

SEVERAL schemes have been proposed for supplying the bees with pollen artificially when the natural article is not available by reason of peculiar weather conditions or the scarcity of the sources of supply. Some progress is being made, but we should be glad to get reports from others who have discovered means by which we can make our bees rear brood on artificial substitutes in the cellar, or outdoors when the weather is inclement.

OUR COVER PICTURE.

THE view shown on the cover of this issue shows one end of the apiary of J. A. Nininger, of Nickerson, Kan. Mr. Nininger writes that the picture was taken in the fall of 1912, at which time there were 39 colonies that had averaged about 50 pounds of comb honey each. The honey was mostly from alfalfa, which, together with smartweed and heartsease, are the principal honey-plants in the locality. The smartweed honey is dark and strong, but there are some who will have nothing else if they can get it. The flow commences about the last of July or the first of August. The colonies build up on it in fine shape for winter.

Ten-frame hives are used throughout. The high stack of supers shown are extracting-supers set over a hive for the bees to clean up.

The colonies are wintered on the summer stands; but a super is put on filled with packing material, then several thicknesses of newspaper are wrapped around, and tarpaper placed over the whole. During the winter of 1911-12 the cold was very severe, the thermometer registering 24 below zero. There was considerable snow, however, which was in the bees' favor. All came through in good condition and built up early in the spring with the exception of two colonies which had no protection. More than twice the average number of bees had died in these two colonies.

THE VALUE OF HONEY RECOGNIZED BY WHOLESALE GROCERS.

WE note with pleasure that the large wholesale grocers in the country are beginning to recognize the peculiar valuable features of honey as a food as they never have before. Many of them are making special displays, and are featuring honey as it deserves to be featured, instead of letting it sell itself in a haphazard way as is so often the case.

In a large catalog of the wholesale grocers, Acker, Merrall & Condit Company, sent us by one of our subscribers, J. M. Thore, there are articles written by experts along the various lines describing the different articles of food, how made, etc. The article on honey is ably written by one who knows not only the science of honey, but how to write of it in an interesting way. Mention is made of the well-known fact that honey may be eaten safely by many persons who dare not eat sugar. The article ends with several good recipes using honey in making cakes, puddings, etc.

ALWAYS SIGN YOUR NAME TO CONTRIBUTIONS.

QUITE a number of our subscribers when asking questions or sending in an article for publication do not sign their names, but sign instead " Subscriber " or " Beekeeper." We are able to answer in GLEANINGS only a small part of the questions that we receive. We reply to the rest by letter; and if no name is signed we are helpless unless it so happens that there are no other subscribers at the particular postoffice indicated by the postmark. Furthermore, we are frequently obliged to write for more particulars before an answer can be given in GLEANINGS; and if the name is not given we are put to considerable inconvenience, and many times we can simply hold the communication awaiting another letter, possibly a complaint, later on. If for any reason you do not wish your name to appear in case your letter is published, simply mention the fact and your wish will be complied with.

" Subscriber " at Brooksville, Ky., will find the Miller smoke method of introducing fully described on page 370 of the June 1st issue for 1913.

THE HARD CANDY SOFTENS AND MELTS IN THE HIVE.

THERE have been two reports of the hard candy made according to the directions in our January 1st issue softening when placed over the combs to such an extent that it melted and ran down, killing bees. We have made and used quite a large quantity of this candy, and we have had very little trouble, although this year (see editorial elsewhere) it has seemed softer than usual. It is likely that the conditions within the hive have a great deal to do with the consistency of the candy after it is placed over the combs. If the air is heavily charged with moisture the candy absorbs water more easily than in another hive where the air is drier. However, perhaps it may be well to reduce slightly the amount of honey used. Instead of one pint of honey to twenty-five pounds of sugar as specified in the January 1st issue, perhaps one pint to thirty-five or forty pounds of sugar would be safer. If no honey is used at all the cake is likely to assume a granular form so that much of it is wasted.

CONDITIONS FOR CELLAR BREEDING.

IN order to get bees to breeding the temperature in the cellar must be warmer than is customary for orthodox wintering. The bees must be disturbed more or less, and fed continually. Candy of the right kind is better than a syrup or sealed stores in the combs. Higher temperature, disturbance, and continuous feeding are necessary for brood-rearing. It is understood, of course, that there should be pollen in the combs. Without a nitrogeneous food there will be no brood-rearing.

Caution.—The average beekeeper should try out cellar breeding on a small scale. Try a few colonies first. If you succeed with these try more another winter. It has its dangers, and before one can succeed with it he must have experience, and some of it of the kind Josh Billings tells about.

A NEW OLD SCHEME FOR GIVING BEES WATER IN MAILING-CAGES.

WE believe that the method of giving bees water when shipping them long distances by mail is going to solve the problem of sending bees across continents, and perhaps around the world. We expect to give our new method a thorough test from Apalachicola this winter. Illustrations of the new scheme will be given later. The reason why we feel optimistic is because Mr. A. I. Root, some thirty years ago, tried out almost precisely the same thing, and he demonstrated beyond a question that it was a success. But the Good candy he used at the time caused him to abandon the water-bottle scheme for candy. It is rather funny now that we are discovering at this late date that the water-bottle scheme is a practical necessity.

Our experiments last summer were not entirely satisfactory, in that our water-containers had a fashion of leaking and wetting down the candy before the bees arrived at their destination. The new containers we have devised make this practically impossible.

ADULTERATION IN GERMANY.

OUR correspondent from Germany, in this issue, page 132, calls attention to the immense quantity of adulterated honey that is sold in that country. The beekeepers of the

United States can hardly appreciate the great benefits we are enjoying under our national pure-food law supplemented by our State laws. The adulteration of honey here has practically ceased.

The same correspondent, on page 133, says, "Chemists to-day have no method by which adulteration may in all cases be proven." That may be true in Germany, on account of the diversity of sources from which their honey is gathered; but it is not true in the United States. Any packer is taking a long chance if he adulterates honey in this country.

We especially recommend that our German brethren get busy and secure a national pure-food law; and, when once enacted, we feel satisfied their chemists will be equal to the occasion. Germany has men of science who are second to none; and if they can not detect *all* species of adulteration it is because they have not given the matter attention on account of a lack of a pure-food law.

E. R. ROOT'S TRIP TO FLORIDA.

We are just leaving for Baltimore to take the boat for Jacksonville. After spending a couple of days at that point we shall go direct to Apalachicola where we have 300 colonies of bees, arriving there between the 16th and 17th. We shall remain at that point for three or four days, when we shall go to Bradentown, where A. I. Root is, arriving there the 21st or 22d. We shall remain in Bradentown for two or three days, when we shall go to Stuart, Fla., and from there go with Mr. W. A. Selser. We expect to spend two or three days at that point, visiting the territory in Mr. Selser's launch. We will go on to Palm Beach, then take another launch for a cruise of five days down to the Keys, stopping at Pompana and Miami. We expect to return to Medina about March 10.

We shall be accompanied by Mr. Geo. M. Gray and wife, of Fostoria, old college mates; and while *we* go on business and pleasure, *they* will seek pleasure only.

Our purpose in going south at this time is to see what our bees on the Apalachicola River are doing, and to determine whether the scheme of moving a carload of bees south to that point will prove profitable. So far, our Mr. Marchant reports that every thing is coming out according to schedule. Just how many bees we shall bring back—well, we will not say now. Let the future tell.

Our purpose in visiting the extreme southern part of Florida is to determine whether it will be possible to establish a queen-rearing yard that can be maintained the year round, supplying queens any month of the year.

Of course, we shall be supplied with cameras, and our readers shall have the benefit of our investigations. Soon after E. R. Root returns, H. H. Root will go down to Apalachicola to be present during the extracting season.

THE MODERN SHAKE METHOD OF CURING FOUL BROOD DEFECTIVE.

The ordinary modified McEvoy method for curing foul brood in brief involves the process of shaking or brushing bees from diseased combs on to frames of foundation in a clean hive. Mr. A. F. Wagner, in this issue, page 137, calls attention to the fact that such treatment will result in bees swarming out in many cases. Our own experience and observation, as well as reports from others, confirm the statement. In some cases it means the loss of the colony, and perhaps in others the danger of spreading disease to a bee-tree or another hive.

Quite a number of our correspondents, including Mr. Wagner, to avoid this swarming out have suggested leaving in an old comb temporarily as a bait to hold the bees, or, as Mr. Wagner suggests, putting in a single frame with a starter in the diseased hive; and after the bees have drawn it out, and filled it with honey, remove all the combs and substitute frames of foundation, leaving the first frame as a bait to hold the bees. To shake or brush the bees into an entirely different hive on frames of foundation is such a radical change of environment that swarming out is very apt to occur, especially if the treatment is administered during the middle hours of the day; and even when practiced at night we have noticed that the bees will often swarm out the next morning. While we do not believe that such bees when they swarm out carry infection to other hives, there is a possibility of it, especially where the act of shaking causes them to gorge themselves with diseased honey—honey that they may hold for a day or two until they get into their permanent quarters. We believe the time has come when the orthodox treatment for American foul brood should be modified in such a way that there will be no danger of absconding.

OUR WINTERING EXPERIMENTS AT MEDINA; FEEDING HARD CANDY.

We are wintering our northern bees in two cellars. Those in the warehouse cellar are being wintered along orthodox lines. The temperature is maintained at about 45 degrees without disturbance or feeding.

Many of the colonies in the upper cellar are being fed dry hard candy, and breeding has been going on rapidly; but, unfortunately, the candy this year had too much honey in it. (See editorial esewhere.) Some of it, and we might say much of it, has been so soft that it ran down on the bees. Fortunately, we discoverd it before much damage had been done. But the extreme softness of the candy caused the bees to consume more than was needed for brood-rearing, with the result that signs of dysentery began to show on some colonies. Fortunately we had three or four days of warm balmy weather when the bees were taken out of the cellar and given a nice flight. The soft candy was removed, and in the mean time breeding had progressed very satisfactorily in most colonies. While the bees are still outside, they will be put inside to avoid the threatened blizzard. More anon.

We asked our Mr. Mel Pritchard, who has worked our basswood beeyard for some years, how much brood-rearing he had noticed in the hives in and out of the cellar for years back. We remarked that some skepticism had been shown to the effect that cellar breeding would result in disaster. " That is a joke," said Mr. Pritchard. " For years and years I have noticed brood in hives in the cellar, sometimes in January and February. This brood hatched out, notwithstanding the colonies had had no flight until they were set out in April."

We have ourselves observed that breeding continues in our cellars. Once or twice we have noticed that our cellared colonies have come out stronger than when they went in. Two years ago this present winter after it turned so cold we put our Carniolan apiary in our machine-shop cellar in midwinter when it was bitter cold. We placed this yard inside because the colonies were so weak that we knew they would not survive a month outdoors. When we took them out in the spring they were very strong, and the only lot of bees that severe winter that wintered well, while the outdoor bees were weak and dwindling.

STANDARDIZATION OF BEEKEEPERS' SUPPLIES.

A COUPLE of years ago Dr. Burton N. Gates, President of the National Beekeepers' Association, called attention to the variation in our standard hives and frames as put out by manufacturers throughout the country; that under present conditions the beekeeper was almost under the necessity of continuing with the same style of goods with which he started.

An effort is being made on the part of manufacturers to standardize goods. For example, more and more the manufacturers are adopting the same styles and sizes of shipping-cases. In years gone by, the multiplicity of sizes and styles was most confusing to the beekeeper, and expensive for the manufacturers and dealers to maintain. Now the styles and sizes have been reduced to a very few; and it is to be hoped that the time will speedily come when the beekeeper can buy shipping-cases anywhere, and have them match those he already has on hand. More and more the novelties in hive construction are being eliminated. The tendency is most decidedly toward the simple ten-frame Langstroth hive, without portico. Bottom-boards are plainer and stronger, hive-covers are becoming less numerous in design, and the something-new-under-the-sun hive or hives have all but disappeared. 'Tis well.

Incidentally, we believe that the plan suggested by Charles Howell, page 151, will do away with one of the odd-sized sections, namely, the $4\frac{1}{4}$ x $4\frac{3}{4}$. We see no objection to the plan—on the contrary there are certainly many advantages. The springs, if they are too stiff, must be weakened by being bent backward somewhat; otherwise the top-bar will be bowed up out of line.

At the present time there are the ten and eight frame hives, both of which require a complete layout of supers, escape-boards, honey-boards, covers, and bottoms. If the ten-frame hive becomes the standard it will mean a large saving to the manufacturer and dealer as well. Just a few years ago the majority of hives sold were the eight-frame. Now the ten-frame outnumbers the former nearly three to one.

Mr. Louis H. Scholl has something to say about standardization of hives and fixtures; and on this subject he says in this issue, p. 129, " My own experience has taught me that, on the average, a colony in a ten-frame hive is usually just so far ahead of one of eight-frame capacity as the difference made by those two extra frames after the combs are built out."

The day is not far distant when the eight-frame will be eliminated. The twelve-frame hive may have some advantages, but it is too heavy for the average person to lift. If a larger capacity is needed, it can be easily secured by means of an upper story with half depth or full depth. The ten-frame hive may be made a fifteen-frame or twenty-frame capacity by tiering up with the great advantage of having a unit of such a size that an ordinary man can lift it. The sixteen-frame hive, for example, would require two men to handle it; and in these days of outapiary work and moving bees, the unit of hive construction should be of such a size that an ordinary man can handle it.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

NOTABLE is an ad. in the Swiss bee journal of a hotel and sanatorium desiring to buy honey. Our hotels haven't got up to that yet.

WALTER S. POUDER's package for sending candied extracted by post leaves nothing to be desired unless it would be to take an inch from its height and add a trifle to its diameter.

THE uncapping-fork, claimed to be better than the knife, has not yet got this side the ocean, and now comes an ad. in *Schweizerische Bztg.*, by J. Arter, offering an uncapping-plane claimed to be better than knife or fork. Price $1.68.

I'M asked to give in detail the different steps that led to last summer's crop. If I were to do that in full it would take up too much space in GLEANINGS. Besides, I've given it all already, for we followed exactly the plans given in "Fifty Years among the Bees."

LATELY I was told I'd change my mind about paint on hives when I learned that the inside of a hive is coated with impervious propolis. Well, I'll quote my answer from my good friend of so many years, G. M. Doolittle, who says, p. 49, that the glued surface is "sufficiently porous." I wonder what would be said if I should bring good authority for the statement that enough moisture goes through the propolized inside of a hive to raise blisters on the outside painted surface.

"THERE is nothing special in the 'red-clover' strain, as all hive bees can work the second crop of this plant, although it is impossible for them to work the first," says the editor of the *British Bee Journal*, p. 450. Has that able authority been caught napping, or are things so very different under the British flag? On this side it is a rarity for hive bees to work on the second crop of red clover, yet there have been strains in which there was something decidedly "special," and they would work on second-crop red clover when other bees neglected it. Alas that it is so difficult to continue such strains!

"THE most important spraying was done when the petals showed first signs of falling," p. 94. That's given apparently with commendation; but at this distance it looks like spraying *in full bloom*. I'd like to know what Prof Surface thinks about it. [We were present when Van Rensselaer & Southam sprayed their trees. As Mr. Van Rensselaer states, one of the sprayings was applied when the petals showed the first sign of falling. There may be a question as to this procedure. But we had about fifty colonies in the orchard at the time. The bees were not working on trees where the first petals began to fall, the presumption being that nectar is no longer secreted; and Mr. Van Rensselaer stated there were no bees on such trees. We lost no bees, and made good increase at that yard. On the other hand, there is just a little danger that less experienced fruit-growers might do a fearful amount of damage by spraying when the first petals begin to fall. We shall be glad to hear from Prof. H. A. Surface on the point.—ED.]

ALLEN LATHAM thought the orthodox 21 days was too much for the development of a worker. Didn't say why—just thought so. I thought I'd refer the matter to the bees. I gave an empty comb to a queen Aug. 5 at 3:05 P. M., and took it away at 5:05. As it was the only comb she had, I could be sure the last eggs in it were laid just before 5:05. Then by watching when the very last young workers emerged from their cells I could know exactly what the length of the time was in that particular case. Aug. 25, at 11:55 A. M., I thought I would see how much unhatched brood was still left. Would you believe it? there wasn't a bee left in a cell! So I was too late too find out just how long it was from the laying of the egg to the emergence of the last bee. But this much I do know: that in this particular case the full time for the development of a worker-bee was inside of 19 days 18 hours 50 minutes, and how much inside I don't know. Don't tell me there was some mistake. The top-bar of that frame was plainly marked "XIX," and I can't see any chance for mistake. Likely enough the 21 days was got from a nucleus, while I operated with a full force of bees and in hot weather. I suspect we should learn to say "20 days" instead of "21 days." [There is quite a variation in the time of hatching chickens. When conditions are favorable the hatch will be earlier than when they are otherwise. May not the same rule apply to bees?

If brood will hatch in 20 days from a *full colony*, and 21 days in a *nucleus*, we ought to know it and make our calculations accordingly. The point is not only of scientific interest, but of practical import as well. We shall be glad to get reports from others. —ED.]

SIFTINGS

J. E. Crane, Middlebury, Vt.

That article on European foul brood, page 897, Dec. 15, is worth the careful study of every one who has not had experience with that disease.

* * *

On page 854, Dec. 1, the editor shows the place where the first Langstroth hive was set up, and the vinegar business built up by W. W. Cary & Son. Mr. Nichols, who runs the queen and bee-supply business of the company, recently called here, and he told me that the firm had the past season ground and made into cider some 73,000 bushels of apples.

* * *

That picture of Mrs. McIntyre and family, p. 893, Dec. 15, is well worth a year's subscription to Gleanings. If the truth were known I believe we should find many who have been able to secure an education with bees who otherwise might have been unable to do so. I know one man, now president of a college, who found the bees of great assistance along this line. A crop of honey is good, but the crop that Mrs. McIntyre shows is better.

* * *

Here is a nut for beekeepers to crack. If sweet clover is to be introduced as a farm crop, who can better do it than the beekeeping farmers? If these farmers who keep bees can show their neighbors that it pays to raise sweet clover as a farm crop it may soon come into general cultivation. But if beekeepers who may get a crop of forage or seed and a crop of honey from it are unwilling to cultivate it, I fear it will be a long time before beekeepers can persuade the farmers who do not keep bees to try it.

* * *

Good words and true are those of Dr. Miller and Mr. Holtermann, page 811, Nov. 15, on truthfulness in advertising and otherwise. There is another side to this subject. The use of superlatives for almost every thing one is talking about leaves no words to use when that which demands such adjectives comes to pass. When a person describes every little ache and ail as something dreadful, terrible, awful, he has no words to express that which is worse. Nothing in language is more beautiful than the simple, exact truth. If we add to our imperfect knowledge of facts our inability to express accurately in words what we conceive to be the truth, a disposition to magnify or minify or distort the facts, who shall know the truth?

REQUEENING WITHOUT DEQUEENING.

The article on this subject by Arthur C. Miller, page 850, Dec. 1, is one of more than usual importance. Most queens will live one year, others for two years, and others even longer, and do well at egg-laying; but often in the spring or early summer we find more or less queens beginning to fail, so that we should like to replace them with young queens of the present season. If we can remove the old queen, and, by the smoke method, replace her at once with a young queen brought from the South, there is little loss but the work of looking up the old queen and the cost of the new one. But if we can introduce a virgin safely while the old one is still in the hive laying even moderately, much will be gained, as eggs and brood in May or early June are of more value than at any other season.

There are several things to be gained. A young laying queen in a colony will, as a rule, increase the vigor of the bees so they will both breed faster and gather honey more rapidly, when it comes. I have often found such colonies among my best for surplus. Such colonies, if left to supersede their own queens, become often so reduced in bees that their surplus is likely to be much below the average. Again, such colonies are much less likely to swarm than those having old queens. Many colonies swarm simply as a result of the supersedure of old queens.

It is not a difficult matter to rear a few queen-cells quite early to near maturity, and then introduce them in a cell-cage into colonies where a young queen is needed. But will they supersede the old queen? I submitted this question to some of the most intelligent beekeepers in Connecticut some three years ago at the Charter Oak Fair at Hartford, and it seemed to be their opinion that a virgin hatched in a colony would not be likely to be killed when first hatched; and later, if she came across the old queen, and they were to test strength to see which would survive, the young queen would be more than a match for the old one. I have been absent from home so much of the time during the three seasons I have had but little opportunity to test the matter. I hope others may do so and report. It seems to me there are large possibilities along this line.

Mr. Merwin, page 851, discusses the same subject, or one closely allied to it—the supersedure of old queens. Here is a problem well worth the attention of any experiment stations that can give it time.

Beekeeping in California

P. C. Chadwick, Redlands, Cal.

The meeting scheduled for the marketing committee on the third Tuesday in January was postponed, there being no quorum present.

* * *

Bro. Byer and the editor are having a spar over the color of a certain honey. Sic e'm! I had the most fun out of that—was even asked what made the African turn black.

* * *

W. G. Hewes says, page 74, " Bees do not put different grades of honey in the same cell." It may be that Mr. Hewes has his bees educated that high, but I never knew mine to draw the color line.

* * *

Mr. Louis H. Scholl certainly has the sympathy of every beekeeper who knows of his sad misfortune. We in California who have missed a honey crop or two think we are in hard luck; but when a man loses seven out of eleven beeyards by flood he certainly has sustained a great loss.

* * *

Dr. Miller, go slow with those large honey-yield stories. Some people do not swallow them a bit easy. Only a short time ago a gentleman who had never had a big honey crop gave me an awful shock, and almost ruined my reputation by his criticism, because I said that I had a colony in 1905 that put up 500 pounds of extracted honey. Mr. M. H. Mendleson, of Ventura, has a record of 450 pounds on the average for a season—I think he said 1897. Many of his colonies that season exceeded 500 pounds.

* * *

The eyes of the beekeeping public are on the outcome of the Root Co.'s movement of bees to the South for increase as well as to secure two honey crops. The movement of bees from Utah to the orange-groves of the southern part of this State has been going on for some time; and I believe that, as a rule, it has proven a success. Mr. G. C. Matthews, of Idaho, last spring purchased 125 colonies at Whittier, Cal.; increased them to 600, then shipped them to Idaho for the alfalfa crop. Just recently he has returned to this State with his 600 colonies to increase still more, expecting to return all to the alfalfa-fields of Idaho. The distance from Idaho to Orange Co., Cal., is about the greatest I have known of bees in car lots having been shipped. Mr. Matthews is interested with Mr. N. E. Miller.

I wish to call the attention of the California beekeepers to the fact that the time has arrived for us to act on the final campaign for funds for our honey exhibit at the World's Fair. As secretary of the exhibit committee I should be pleased to have every beekeeper from Siskiyou to Imperial County write me as to what they are willing to donate on this exhibit. We want every beekeeper to feel that he (or she) has had an opportunity to aid us. If we can finance our plans, this will be the grandest display of honey and wax ever seen. Write me at your earliest convenience as to what we may expect from you.

* * *

Dr. Miller says on page 764, in speaking of robbers, " Most of them never find out that they *can* rob; but let a bee once get into its little noddle the knowledge that there is such a thing as getting in another hive stores piled up ready to hand," etc. You are right, doctor, and I just want to emphasize what you say. Bees that get started to robbing badly will never entirely give it up until they give way naturally to a generation following that has not acquired the habit. One of the first things I always instruct my help about is, *not* to leave any honey or combs containing honey exposed to the bees. There are times, when honey is coming in freely, when it would do no particular harm; but it is best to make a practice of keeping every suspicion of trouble under cover.

* * *

One of the most beneficial rains we have received for several years began falling Jan. 9, continuing for five days. The average for the southern half of the State was nearly four inches, while the northern half received a larger amount. The weather during the entire winter has been warmer than usual, with but very little north wind at any time. I have never seen prospects brighter at this time of the year than at the present time (Jan. 25). Should the winter continue wet and warm, as now seems highly probable, we shall doubtless get a bountiful honey crop the coming season. The condition of bees is satisfactory, considering the season of dearth we have passed through. Some feeding is in progress, and much will be done later; but we shall be relieved sooner than usual by the abundance of wild flowers that are sure to come earlier.

Later.—Another very heavy rain is falling.

Beekeeping in the Southwest

Louis Scholl, New Braunfels, Texas.

BULK COMB HONEY DURING THE WINTER MONTHS.

During the first years of bulk-comb-honey production in Texas, the home of this product, every precaution was exercised to dispose of all of this kind of honey before the cool weather of the late fall months and the winter set in. This was done to evade the danger from granulation of the honey, which makes it unmarketable if this should take place. As a result, this effort on the part of the beekeepers has led to a tendency to lower prices toward the end of the season. The beekeepers themselves are responsible for these lower prices to a large degree, in that they offer their bulk comb honey for less money rather than run the risk of having it granulate on their hands. On the other hand, most of the buyers have always discontinued handling honey, and bulk comb honey especially, as soon as cool weather began. This is unfortunate for the beekeeper who is not able to dispose of his crop in time. Some have lost considerably in a few instances.

With the idea of overcoming this difficulty I have experimented quite a good deal during three or four years, with the result that I have been selling and shipping bulk comb honey throughout the entire year. Although I carried over, through last winter, only about 6000 lbs. of both comb and extracted honey for this purpose, there will be at least twice this amount used this year; and the indications now are that this will not be enough to fill all the orders that I am reasonably expecting from the steady rate they have been coming in thus far. In comparison with last year's receipt of orders up to the same time in the winter, I have had more than twice the number already.

The secret of handling bulk comb honey during the winter time is in the manner of packing it. Unlike the methods employed by most beekeepers, that of packing the entire crop as soon as the harvest has been obtained, I have very little packed in advance of orders for it. On the one there is too much danger of the honey granulating before it is sold, or at least presenting the appearance of old honey when it reaches the customer. Newly packed honey displays that fresh appearance of new goods.

For this reason our comb honey is kept in the frames in supers, and the extracted honey in cans. When orders come in, the comb honey is packed in the desired size of packages, and the extracted honey, which has first been heated to a temperature of about 150 degrees F., is poured over it quite hot—not too hot, or it will melt the comb. Usually the extracted honey has granulated in the cans; but this does not matter, as it can be liquefied easily since it must be heated any way.

* * *

STANDARDIZATION OF HIVES AND FIXTURES.

It is rather unusual to notice so few improvements or changes in hives and other beekeepers' supplies in the catalogs as this year. Heretofore our first desire, upon opening one of these catalogs, was to find what new things were added to the list or whether any of those already listed had been changed or improved.

In our opinion the beekeepers are benefited by this greater stability in the supplies, both in the cost of the investment as well as in the greater uniformity of the supplies purchased from time to time. I do not want to be understood as being opposed to improvements of any kind in the hives and the rest of the supplies and appliances. Far from that; for, in fact, I am one " who is guilty " of having been at various times instrumental in bringing about certain changes and improvements in apicultural things; and a few good substantial improvements have but recently been added to the list of the beekeepers' necessities. But I do deplore many of the radical changes and so-called improvements that have been put forward at various times that were so entirely different from the old that great expense was necessary for their adoption. Many such changes have cost beekeepers much money; but they are discarded again, sooner or later, for " something new and better "(?), and perhaps as entirely different as in the first case.

My most earnest desire has always been for a more uniform standard in every thing used by the beekeeper. The less difference in the large numbers of hives, supers, frames, sections, bottoms, and covers, used by the beekeepers of the country, the cheaper can they be manufactured. The same applies to shipping-cases and containers in which we market our crops. It would also mean much toward a reduction in the cost of most other articles used.

The more complicated an article, the more difficult to manufacture; and, consequently, the higher the cost of production. The more numerous the sizes or styles of such articles, the more expensive machinery is needed, all of which costs more money. For that reason greater simplicity and uniformity are very essential indeed. It would be well to strive toward this end rather than be continually adding a greater number of newfangled articles to the already large number catalogued.

HIVES FOR EXAMPLE.

The longer I study the question of the size of hives the more convinced I am that the ten-frame width of hive is the nearest to if not the proper size for all parts of the country. The prevailing opinion years ago was that the ten-frame hive was better adapted for the South, but that the eight-frame was better suited for northern localities. It has long been apparent, from the fact that the ten-frame hives have become more popular in the North, that this is a mistaken idea. The further fact that even larger hives, and those of greater width, are used successfully by some beekeepers in the North, is an indication that the ten-frame hive is not too large.

My own experience has taught me that, on the average, a colony in a ten-frame hive is usually just so far ahead of one of eight-frame capacity as the difference made by those two extra frames after the combs are built out. This provides the bees with additional room for winter and spring stores to begin with, and it enables them to spread out their brood-rearing operations so much more that more powerful colonies of bees may be obtained, and these with a lesser desire to swarm on account of the additional room. Such rousing colonies will also do better work in ten-frame supers, especially after they are tiered up several high on the hive. Since the work is over a larger surface, the super work is kept closer to the brood-nest where the bees do better work.

THE EIGHT-FRAME TOO SMALL.

The eight-frame hives proved too small for good results in my yards years ago, and I am sure that those who advocate and use these small hives, even in the North, could obtain better results with the ten-frame hives properly handled. This item alone would be worth something, and in favor of the ten-frame hives if the eight-frame size could be discarded in time. Such a move would be in the direction already suggested—that of decreasing the number of different sizes and also the different styles of hives. It would be more economical, in our opinion, to have only the one size, all ten-frame hives and supers, covers, and bottoms, and such other things as are used with the hives. Besides, there would be less confusion in ordering new goods, and less trouble on this score in the apiaries if only one size of hives were kept.

THE HIVES I USE.

It may be asserted that I am deviating from the very thing that I am advocating in this article because I use a hive that is altogether different from the standard hives in use. Most of the readers know that I am a strong advocate of the shallow-story hives or divisible-brood-chamber hives. But I get better results with this kind of hive, especially since I depend upon a large number of apiaries. With over thirty apiaries scattered over the country, and visited only at what most beekeepers would term long intervals, it has been possible to keep up with the bees, especially during the swarming season, just because certain manipulations were possible that enabled us to reach the end desired.

It must be remembered also that our hives are composed of entirely standard parts. Nothing but supers of the Ideal ten-frame size are used throughout for brood-chambers and all. The regular ten-frame bottom-boards and covers fit every hive made up of these simple supers, and the size of the hives can be enlarged or decreased with the greatest ease. There is only one style and size of frames, and only one kind of foundation is used in all of them, whether they are used in the brood-chambers or in the supers for comb or extracted honey. Neither are any of the frames wired, which is another item in saving in both time and expense.

Since we have tried many styles of hives during over twenty years of beekeeping, testing a number of each kind side by side, we have found that there is quite a difference between the results that may be obtained from the several kinds of hives. The shallow-hive system, incorporating the divisible-brood-chamber hive that we have tried most thoroughly for over fifteen years right beside other styles, both eight and ten frame, gave us the best results; and its very simplicity of construction throughout, together with the interchangeability of the various stories of the hives, has prompted me to make the suggestions for more simple hives, supers, and other beekeepers' supplies, with a view of lessening complications and confusion, and lowering, if possible, the price of our necessities.

Not in the Queen Trade

Will you allow me to state through your columns that I am not in the queen trade? I gave it up twenty years ago. Since I gave my opinion on what constituted a good queen in GLEANINGS I have had a large number of inquiries for queens, and it will save my time and correspondents' if you will publish the fact that I have none to sell.

MAJOR SHALLARD.

South Woodburn, N. S. W., Australia.

Conversations with Doolittle

At Borodino, New York.

THE APIARIST HONEY PEDDLER.

"I have more extracted honey than I shall use this winter; and as the bees have an abundant supply I should like to dispose of it. Do you think that it would pay me to go out into the surrounding country and villages peddling this honey?"

In 1869, when I first commenced to keep bees, the demand for honey was in excess of the supply, and even strained honey sold readily at high prices. But with the seventies came movable frames quite generally, then the honey-extractor, comb foundation, etc. Bee journals multiplied, and through these things the industry was given such a boom that large quantities of honey were produced, and prices began to tumble till the disposal of honey became a more serious problem than the question of production. A little later on, the tide changed from comb-honey production to extracted, as the extracted readily brought fifteen, eighteen, and in some instances twenty cents, when shipped in barrels holding 500 lbs. Up to this time all comb honey was shipped by express, and the high rates and numerous breakages laid heavily on the minds of the producers. Hence, the cheaper freight rates with no danger from breakage revolutionized matters, and much more extracted honey was produced than comb. Then arose the question asked by our correspondent, and many beekeepers went out into the "lanes and byways" selling honey from house to house at a lower price than was realized in the early seventies in 500-pound packages delivered at the railroad station. I was never given to peddling; in fact, I hated such a thing, but the taxes had to be paid and the family supported, so I was driven to that which it seemed to me I was never fitted for. And, strange as it may appear, I found that I could sell an average of 100 pounds a day in any good farming community, while in villages I could do even better.

First in importance is having good *thoroughly ripened honey,* no matter whether it is clover, basswood, or buckwheat. The latter should sell at about three cents less per pound than the white honey. When ready, take a sample in one of the five-gallon cans, and a half-gallon Dover measure. This measure has a funnel attachment so that as little or as much may be poured out as desired without the dripping or smearing of things generally, as is the case with dippers and such like, generally used for sampling honey. If the honey is granulated it should be liquefied; and if the weather is cold one of the numerous heaters should be taken along so that the honey in the measure can be kept warm enough to pour readily.

There are two ways of finding buyers. The way I used, and the preferable one, where time is not too limited, is, with measure half or two-thirds full, to call at every house—do not skip one; and when the door is opened, say to the one opening it, "I have some very nice honey; and if you will bring me a sauce-dish I should like to leave a little sample of it for a taste for you and the *children,*" putting the emphasis on the children, if you see any, for a child's taste for honey is a better advertisement for you than a hundred printed advertisements. When the sauce-dish is brought, pour in till it is two-thirds full, and leave a printed slip, telling that you will be around with honey like the sample in two or three days. Give the price per pound, making the price one cent a pound less where one or more dollars' worth is taken.

The second day, if the weather is favorable, load on your honey-extractor can, filled with honey, and fill all orders, even to as little as one pound; for a small sale often paves the way for a larger one, leading to a steady customer for years to come. It always pays to be accommodating and obliging. Do not annoy people by urging them to buy when they do not want to, and be invariably polite and pleasant, no matter whether they buy or not. In this way friends can be easily made who will be glad to see you come again. Follow the same route each year, and your sales will increase each time, especially if you keep your honey up to the same standard of perfection.

If a wet poor year comes when the honey is not so well ripened, or gets mixed in with other honeys owing to the slowness of the gathering, explain the matter, and put the price accordingly. It is the most satisfactory to let the purchaser furnish the dish, then there is no package to pay for or be returned. However, it is well to have a few filled five-pound pails with you to meet any demand that may be made for such.

The second plan is to take the big can of honey right along with you, and upon entering each house let whoever meets you sample the honey, and then sell at the same call; but if you have the time the former plan will give much the better results.

General Correspondence

NOTES—NOT FOR DISCOUNT

BY ARTHUR C. MILLER

These "Notes" are not an attempt to steal Byer's thunder. These are quite a different kind. These are not for "discount."

Prejudice, the greatest stumblingblock to modern bee culture. Forget it. Better err on the side of trying a lot of fool things than miss one good one because you "know it won't work."

The Chinese keep bees as our grand-daddies did. Excuse me, our grand-daddies kept bees as the Chinese did and do, and doubtless have done for thousands of years, in hollowed-out logs. Sometimes a rough box is used.

No wonder chunk honey is popular where it is not subject to extreme cold. What is more inviting than a piece of comb of virgin whiteness with golden honey dripping from its broken cells? I've just been sampling some, and ought to know how good it is.

Every now and then one or another of the boys is heard to say that he will "risk his reputation" that somebody's pet scheme won't work. Reckless remark that. First thing they know some meddler will look up their reputation, and who knows what they'll find? Ginger!

Stimulative feeding for spring should always be done in the fall. Give them all you think they will need, then double it, and then add half as much again for good measure. Then forget them until late spring. I have given this instruction for many years, but some have not yet learned it.

Funny how difficult it is for some persons to tell whether results *are on account of* or *in spite* of something or other. Half the time the scheme or contraption has nothing whatever to do with the outcome. What have I in mind? I'll not tell you; 'twould hurt too many feelings, and I'm not looking for trouble.

In the *American Bee Journal* for November, T. W. Hall, of Colo, Iowa, is quoted as requeening at the beginning of the harvest and winning by it. Hereabout we do it *before* the harvest, the *fall before,* and also win. It is easier then, and a whole lot cheaper too. Good practice this, having young queens at the head of all colonies. Paste it in your next summer's hat and try it.

If, some bright morning, you find your horse minus tail and mane, lay it to an Ontario chap named Munro. He is recommending it to stop robbing—probably sets the bees to hunting for the tailless horse (and, say—why don't they sting the horse smell on the horse hair? Answer me that, you odorous champions). 'Most any of the creosote preparations smeared about the entrance will stop robbing at once. Worth remembering.

Buying versus making supplies often agitates the beekeepers, and the answer is an interrogation-mark. Much depends on the man, something on his manner of beekeeping, and an excuse is given to "location." Not a few of the boys buy some from the supply manufacturers, some from local concerns, and make some. Good scheme, too, and interesting to see how you shift about each year. If you don't shift you have stopped thinking, or have reached perfection—i. e., died.

In the language of Artemus Ward: "They are amoosin little cusses." Who? Why, those Southern New England beekeepers who are talking about the white-clover flow and their crops of that honey. Well, ignorance is bliss, 'tis said, and they are just as happy as if their honey really came from that instead of from half a dozen other sources. If they only knew the sources of their surplus they would soon increase it. Think it over from now till the next harvest, then *look;* but have a care where you look.

If Hand and Bonney want to get mightily stuck up in their way of producing comb honey, I don't care, and probably they don't care either about anybody's opinions. "Stuck-up people" don't. We hereabouts think it *cheaper* to let the bees put the honey in the sections from the start. We get ideal filling too. How? Oh, pshaw! What's the use of my telling you? We New Englanders are not considered in it for raising honey. But you notice we stay right here and don't keep moving apiaries, as they do in Ontario and Ohio and several elsewheres.

In November 15th GLEANINGS Louis Scholl has a fine vat for melting candied honey in cans. (Note.—Not a pun.) I had a glimmering recollection that honey was slow to cut that caper in his vicinity.

Chunks of the 60-gallon size evidently are too big. There is a scheme used by some which beats that plan. Put the cans on their side slightly sloping toward the outlet (formerly the inlet), apply gentle heat under cans, and as fast as the honey melts it runs out into a large tank, stirring itself on the way. Great scheme, and rapid. O Pscholl!

If one should judge from the seemingly fiendish glee with which people write and editors publish all sorts of makeshifts, one might be pardoned for believing them the virtuous and better way of beekeeping. Cut out all such. Throw away, burn up, destroy, annihilate, all misfit and obsolete material. It is the poorest sort of economy to use it. It gives one a pain—yes, several—to see the worse than poor planning and management of some beekeepers. And the amount of non-productive labor they do is—well, it makes one too weary to think of words to describe it. No wonder such people groan and kick at the preachment of "keep more bees." Poor souls, they have all they can do to keep what they have.

Not that I would cast any reflections on H. H. Root's groove-and-wedge method of putting foundation into brood-frames, but 'tis horribly slow, and wastes foundation at the rate of one sheet in about thirty. At 50 cents per pound, and only 7 or 8 sheets per pound, it counts up in a few hundred pounds. Down in this corner of the country several of us do it faster than that, waste no foundation, use a grade running 11 to 12 sheets to the pound, and get perfect combs. But then, we don't sell foundation. We buy it of the Roots and others, pay them more than 50 cents for it, and save money at that. But this is another story. I'll tell it to you some day—if you will promise to listen and try it before you comment on it.

Wesley Foster, the professional Colorado wanderer, says that one Nichols, of that part of the continental roof, "has demonstrated that a beekeeper can successfully rear good queens by the most approved methods and produce a crop at the same time." Now, Wesley, please tell us how many queens, and the cost per queen, and how many colonies it took for queens, and how many for crop. But, better still, just run down here and we will show you how to have *one* colony raise *four hundred* queens in one season, magnificent ones too, and have that same colony a rousing one at the end of the season; and when we want to put a few thrills into the Western amateurs, we produce a crop on that same colony at the same time. And by the way, Wesley, the "most approved" methods are not always the "most effective."

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NOTES FROM GERMANY

BY J. A. HEBERLE

In Germany we have no comb-honey canard, but we have something much worse. We have artificial honey and cheap foreign honey from Central and South America. Although we have a duty of $9.60 for 220 lbs., the beekeepers complain of this competition as unfair. Of course this blame is on the home merchant, not the foreign beekeepers.

This imported honey, so it is said, is in a very unclean condition. It could not be sold as it is imported, because nobody would buy such nasty-looking stuff, even if the law would permit. The importers heat it up, clean it thoroughly, and sell it as "warranted pure honey." The beekeepers say that the origin of all honey sold should be declared, so that the consumers may know what they are getting. This foreign honey costs probably about 3 cts. per pound at the door of the beekeeper, and even less. The price for good honey in Germany is high, because the bee-pastures (and the weather) are very poor compared with those of America. In some districts (counties) 10 to 12 lbs. is the average per colony in a normal season. In poor seasons many beekeepers do not get any surplus; 25 to 30 lbs. is in many districts considered a very good crop. Real good crops we have in some seasons in districts of the Black Forest and the "Vogesen." At the base of the needles of a fir-tree a sweet juice exudes. It is not honey-dew nor from the plant-louse. The bees gather some years a great deal of this black honey, which has a peculiar sweet taste reminding one of the forest; but it lacks the fine odor and taste characteristic of honey from the nectar of flowers. A good many people like it, and consider it especially salubrious.

An immense quantity of artificial and adulterated honey is sold. Often an inferior syrup is mixed with some of the cheap foreign honey. It is usually sold under a fancy name that has the word honey in its combination. Manufacturers and retailers gain heavily, so that, if now and then one is fined a few dollars he does not mind that. We have a law, but the meshes are too wide, and most crooks get through without being caught.

The beekeepers of Germany could easily have the present laws so amended that the origin of the honey would have to be declared, and so that all artificial products and mixtures would have to be sold as such —not being allowed the use of the word " honey " in any combination.

Beekeepers here have still another wish. They want a law enacted by the national parliament so that it may be uniform—the same in the whole empire—about foul brood and other diseases of the bees. The general government and the parliament would readily accede to these demands, notwithstanding the opposition of the manufacturers of artificial honey and the importers and venders of cheap foreign honey. Years ago this honey was used exclusively by the confectioners.

The beekeepers should be united in one powerful federation. " There is the rub." Conferences with that end in view were held, and it was generally believed that the right formula was found. The statutes had been accepted. It was agreed to complete the Union in July last at Berlin. But there is " many a slip 'twixt cup and lip." The president of the largest organization, at the last moment, at Berlin, ignored the agreement—the formula he had helped to make. Now the union is further off than ever. We have two large unions, each with 70,000 members, and some smaller ones; but we have not what we should have. It seems that some, a little top-heavy from the importance they have in their own estimation, are to blame for the failure at Berlin. Now some with a talent for demagogy are trying to draw a Mason-Dixon line. I suppose the beekeepers will have or get the organization they deserve.

DO BEES CARRY EGGS FROM ONE COMB TO ANOTHER?

The *Schweitzerische Bienenzeitung* brings a short article that answers this question in the affirmative. Mr. Gassman writes that he wanted to get a series of queen-cells from " Esther." For that purpose he dequeened a strong colony eight days before. On the 19th of May he wanted to get the eggs from " E;" but this colony had swarmed, and the swarm had eggs in one comb. This comb was taken and given to the colony that was to rear the queen-cells. Before the comb from E was given to this nursing colony all the queen-cells (19) were destroyed. Seven days later this nursing colony was examined. On a comb this side of the one from E, on the upper periphery of the brood circle, there was a capped queen-cell on each side of the comb. The contents of both cells were white queen pupas. On the comb from E there were 18 capped queen-cells. Mr. G is sure not to have overlooked the cells on the 19th of May; but if he had, the queens would have emerged, or the cells would at least have been ripe. He concludes that the eggs from the comb given were carried to the adjacent comb. The one comb given seemed not sufficient for the colony.

Another theory would be that the colony had preserved the eggs from the original queen. It has been reported that bees do sometimes preserve eggs. It is a fact that fresh bee eggs can be preserved several days under proper conditions without losing the quality of hatching.

A NEW METHOD TO DETECT ADULTERATED HONEY.

Dr. Armani and Dr. Barboni have discovered a reaction whereby adulterated honey may be easily detected. Two grains of the honey are put in a porcelain dish and dissolved with 10 c. c. of distilled water. The solution is transferred to a test-tube, and 1 c. c. of a solution of benzin saturated with glacial acetic acid is added. Adulterated honey will color the solution a yellowish red, while pure honey will not change the color. The color reaction takes place immediately, and the intensity will be in proportion to the quantity of the artificial product in the sample examined. This test is very easy to make, and does not take much time. It can hardly be expected to detect *every* adulteration. It will answer, probably, for only one artificial product; but the wholesale adulterators have able chemists in their employ, and most likely find a way so the reaction won't work. Chemists have to-day no method of analysis by which an adulteration may in all cases be proven. The natural honey differs so much according to the source of nectar that proving adulteration by analysis is not a success. It would be easier, for instance, to prove that a certain sample is not alfalfa or white-clover honey, because either of these honeys will show very little variation, no matter where it is from; but here we have mostly honey derived from five, ten, and more different flowers, and these flowers furnish nectars in various proportions; so if we take one ingredient that can be determined quantitatively we must allow a large limit as minimum and maximum before we can say this honey is adulterated. Manufacturers know this and act accordingly.

BEES MOVED 1½ MILES TO BASSWOOD.

Mr. Freudenstein, in his *Neuen Bienenzeitung*, writes that he moved his bees this summer 1½ miles to get the benefit of the

Among the big pines in Bluejay Canyon. *Photographed by* P. C. CHADWICK.

basswood-honey flow. Not one bee flew back to the old stand. That is quite different from the orthodox teaching, and what our books say about changing or moving bees during the summer.

Markt Oberdorf, Bavaria, Germany.

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BEE-LIFE IN THE SAN BERNARDINO MOUNTAINS

BY P. C. CHADWICK

I have lived in the foot-hill region of the San Bernardino Mountains for ten years, and have penetrated them for some distance in the canyons and lower levels; but my desire to reach the higher elevations and study the flora, and ascertain to what elevation bee-life could be found, was not gratified until August of last year.

I planned my trip with the object of reaching the limit of vegetation, and to that end decided to start for the top of Mt. San Gorgonio (old Grayback), which is the highest point in the southern part of the State, reaching an elevation of 11,485 feet. The summit is reached only by narrow trails, and they are rather dim in many places, making a guide necessary. In this respect I was fortunate in that my oldest son had made three trips to the summit, and was thoroughly acquainted with the trails, though he is but fifteen years of age. He made a fine companion, and gave me much pleasure by describing the various streams, peaks, and historic spots.

The elevation at my home in Redlands is 1400 feet. Forest Home, a mountain resort, and the end of our first day's journey, is 17 miles distant, with an elevation of 5000 feet. This, the first lap of our journey, was made by automobile with a friend, our tent and camp equipment coming by auto stage a few hours later. Our tent was pitched and permanent camp established at this point, which is 16 miles from the summit of old Grayback, but is the highest point to which roads are made. Aside from making a short

This flower is known as cow cabbage, and is found in the higher parts of the San Bernardino Range. Bees work it freely for nectar. Photographed by P. C. Chadwick.

The lighter-colored shrubbery in the foreground is mountain lilac, and the darker, the scrubby mountain mesquite. The little bush in the center of foreground is mesquite. *Photographed by* P. C. CHADWICK.

trip with Wallace (my son) early the next morning, the day was spent in making camp comfortable for my daughter Ruth and her friend who were to keep camp alone while we went into the higher altitudes. Here I wish to say a word about the automobile in the mountains. It is wonderful what a load the auto truck running to this point is able to climb the grades with; and the machines that reach this resort over mountain roads are many indeed. However, of all machines that get there the little Ford is about the first and most sure, and I believe that, for light roustabout work for an apiary over any kind of roads the average beekeeper has to travel over, it is about the best and most sure of any, regardless of the price.

The second day we started out early for a trip to Dobbs Cabin by way of the Dobbs trail. This we reached after six miles of steady climbing which brought us to the big

A field of wild buckwheat containing over 40 acres on the mountain-side near Forest Home. Elevation 5500 feet. *Photographed by* P. C. CHADWICK.

pine forests. There was wild buckwheat to be seen in the canyon, from the time we entered, eight miles below Forest Home, as well as wild clematis, which was abundant, and alive with bees. These two comprised the chief flora of the region around Forest Home and for some three miles up the canyon above this point. But here we began to find traces of white sage. Though it was nearly out, there were bees busy trying to gather what nectar it contained. I might add here that there was no great amount of white sage anywhere in this canyon, nor on the mountain-sides adjoining. After traveling up the canyon three miles we began the ascent of the steep trail toward the summit, traveling slowly and making careful study of all honey-bearing plants. We saw white sage and wild buckwheat up to an elevation of nearly 7000 feet, but no higher. The entire mountain side was covered with wild lilac, mountain mesquite, and amanzanita, but the blooming period of all these had passed at the highest elevation we reached on this day's travel, about 7500 feet. The abundance of bee life found was a great surprise to me, for every flower of which there were a few of many varieties contained bees. At 7500 feet I found them watering, and coursed them on up the canyon among the giant pines, firs, and redwood. It is not generally known that there are redwood trees in these mountains; but we found one that was almost 15 feet through at this great elevation.

A giant sugar pine. No lumber grows that is better suited for hives. The clear lumber in this tree would retail in Redlands for $150 per thousand. Photographed by P. C. Chadwick.

P. C. Chadwick watching a bee working on the cow cabbage at an elevation of 9000 ft. The bare peak in the distance is a part of the summit of the San Bernardino Range.

The day was more than half gone, so we returned to camp satisfied with what we had accomplished.

We had found no lack of bee life to the limit of altitude reached; had found to about what level the white sage and wild buckwheat could be found; secured some fine pictures, had photographed a field of buckwheat on the side of this mountain, that contained more than 40 acres, as well as being able to find one bee-tree and many sources that we did not take the time to follow up.

The following day we were up and off early, for we had decided to go to the limit of vegetation which required a walk of nearly thirty miles for the day. This time we continued further up the canyon and took the Vivian trail to Vivian Canyon, and then on over toward the summit. The elevation of honey-plants was found about as we had found them the day before, up to 8000 feet; but at this point the mountain mesquite was blooming profusely, and was literally alive with bees. But by the time we reached an elevation of 9000 feet the bloom had not yet come out; but the bees were working on what is known as the cow-cabbage and a few small flowering plants. We had almost reached the limit of vegetation, there being no trees but the lumber pines, some amanzanita brush of low scrubby growth, wild lilac and mountain mesquite not yet blooming. Vegetation was so thin, and flowers so scarce, that we decided it would be useless to continue the search, though I returned fully convinced that it was probable that bees often flew over the barren peak of old Grayback, and that the flowers that bloom on this peak at times are visited by the bee for its store of honey.

As Uncle Sam zealously guards the giant trees and all growth in this a national forest reserve, the little bee will doubtless occupy this vast stretch of mountain fastness undisturbed for many years to come. The giant pines of the mountain sides, coves, and canyon will remain in their natural state to help protect and retain the vast amount of winter rain and snow that finds its way into the soil, to come again from the springs that feed the mountain streams, finding its way to the valleys to water the orange-groves and other farm products that help to make life in the great semi-arid region of Southern California.

Redlands, Cal.

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DO NOT MINIMIZE THE DANGERS OF AMERICAN FOUL BROOD

BY A. F. WAGNER

Of late, when speaking and writing of bee diseases, European foul brood seems to be uppermost in the thoughts and writings of most beemen. Is there not a possibility that, in our zeal to prevent its importation, and eradicating it when found, the danger of American foul brood is minimized? A word of warning at this time may not be amiss.

American foul brood still exists in perhaps all of the counties of Southern California. At a recent meeting of the Board of Supervisors the chairman said that, if he was not mistaken, beemen are not afraid of this disease, European foul brood being the most feared. When asked if I felt the same about it I answered that I surely dreaded American foul brood, and so would any one else who had ever had any experience with it. The beeman who thinks he has a light job on his hands to eradicate American foul brood will find out his mistake before he gets through.

A description of this disease in this article will hardly be necessary, as a description of it can be found in any book on bee culture, so that any intelligent person can readily detect it. But I should like to write a few words as to how it may spread and become a menace to an entire neighborhood.

It is often caused by swarms, either natural or absconding, from affected colonies. The danger is most in the latter. To guard against this, never hive a swarm into a hive containing drawn combs, nor unite a swarm with weak colonies. I know this to be a practice with many beemen. Don't count too much on those stray swarms that happen to come to you. Let me give you an illustration: On inspecting a certain yard I found several affected colonies, and the regular treatment was prescribed. On a trip to this yard later I asked the owner how he had succeeded. The answer was, "Oh! all right, what are left. Some of them absconded." (I want you to notice they absconded. Where to?) I had tried to get this party to use my mode of treatment, but he took what he thought a quicker mode. Those absconding bees perhaps went to a yard in the neighborhood, and perhaps were hived directly into a hive containing drawn combs, and you know the result. Later another case of foul brood, another shaking, another absconding swarm, etc. To be on the safe side, always hive stray swarms on *starters*.

"But," you say, "how can I prevent absconding and get rid of the disease?" In answer I will describe a treatment I used some ten or eleven years ago.

After trying the shaking plan one day, and finding one-third of the number so treated clinging to brush the next morning, and some gone entirely I marked every colony that needed treatment, and worked every thing down to the brood-chamber by extracting the honey and melting the combs into wax. Next I took one comb out of the center of the brood-nest and put in its place a frame containing about two inches of comb foundation which we will term a starter. In two days I removed every thing except this starter which had by this time been drawn out, and perhaps contained some honey. I placed this starter to one side of the hive and filled in with full sheets of comb foundation. Every thing that was removed was taken care of by extracting the honey from the combs and then melting the combs into wax. One or two days later I removed the starter, and in some instances the comb next to it also. By this treatment 95 per cent and over were cured, and there was no absconding.

Some say, "Why not cage the queen to prevent absconding?" I will say that I have had them abscond and leave the queen. And, more than that, the bees were so confused or excited that they would swarm out and form into two or three different clusters, and either try to enter, or actually enter, other hives in the apiary.

Others say that we are bound to have the disease as long as the trees contain wild bees, or some farmers have only one or two neglected colonies. To the first I will reply that I have yet to meet the first man who ever mentioned that he had found foul brood in a bee-tree. I do not say it isn't there; but did you ever see a bee-tree being robbed out by other bees? In case they get foul brood and die, the moths are generally there before any thing else. The danger from this source is not great. From the other source, of course, the danger is greater, but not generally as great as imagined, as bees that are not much disturbed are hardly ever robbed by other bees; and should they die by becoming queenless or by disease, the moths soon have every thing.

Another means of spreading this disease is when the honey from diseased colonies is sold to retail trade and the empty cans are thrown where bees can clean out the contents. It would be a good plan to make a law making it compulsory for each to mark or stamp each can, stating that the honey was taken from bees containing foul brood. I believe this last, if it could be enacted, would rid the country of foul brood quicker than any thing else.

El Centro, Cal.

[We agree with nearly all that our correspondent says, except that we believe it would be impossible to get a law passed compelling a producer to mark all honey from foul-broody apiaries, for honey so marked would be almost unsalable. The average consumer, knowing nothing of the nature of the disease, would consider honey from a hive containing *foul brood* unfit for table use.

As to whether swarms may carry foul brood, see editorial.—ED.]

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FROM NORTHERN OHIO TO NORTHERN FLORIDA

BY J. E. MARCHANT

This venture was undertaken by The A. I. Root Co. in order to determine the advisability of shipping a carload of bees from Ohio to Florida, a distance of fifteen hundred miles, with the prospect of making an increase of 100 per cent, and perhaps a fair crop of honey.

Six days prior to the time this shipment was made, a severe blizzard raged in that section of Ohio, covering the ground with about two feet of snow, making it necessary to dig the hives from under the snow. The railroad being blocked by snow it necessitated a delay of five days before shipment. For shipment we used a ventilated refrigerator car. The bees were loaded in the car with the frames running the same way as the car, with three rows on one side and two on the opposite, with a narrow passageway between, and four tiers deep. They were kept in place by means of a framework of 1 x 8 boards reinforced by a railing, and a stanchion of 2 x 4's, which, with the thickness of the cleats on the bottom-board, and the thickness of the screen on top, left a space of eight inches between every two tiers, this making it possible to water every hive in the car. The hive-covers were stored in any place where it was possible, in order to economize room.

My sleeping accommodation consisted of a cot, which I was unable to use, placed in the alleyway. Dining-car accommodation not being available, it left me many a time with a hungry stomach. Upon leaving Medina I took a supply of eatables which lasted me till I got to Nashville, Tenn. There I walked the length of the train, some sixty cars, and half a mile beyond, and had the pleasure of paying twenty cents apiece for some small railroad sandwiches. During this trip a few breakdowns occurred, which necessitated sawing occasionally some boards and driving nails. The motion of a fast freight made this operation somewhat disagreeable, as it made it as easy to hit the thumb as the nail.

Soon after leaving Birmingham, Ala., a portion of the staging broke, compelling me to stop over at Montgomery for repairs.

This necessitated the removal of 135 colonies. In making repairs and reloading, fifteen hours were lost. From Montgomery to Bainbridge, Ga., a little water was used—possibly twelve or fifteen gallons. Upon arrival at Bainbridge the bees were taken from the car and placed on the steamboat dock. From the time of unloading to the departure of the steamer, thirty hours elapsed. The shortness of time and nearness to destination prevented me from giving them a flight. To keep the bees quiet during this interval a very large amount of water was used. Four hours were consumed in loading the bees upon the steamer; the weather being very warm, and the bees being piled upon the open deck, necessitated an almost continuous supply of water.

The trip from Bainbridge to Randlett's Landing, Fla., took twenty-four hours. Upon arrival at Randlett's Landing I had a crew of five men in readiness. The boat's crew carried the hives ashore, and my men placed them upon their stands. The bees were then released and given a flight after thirteen days of confinement. Upon examination next day I found three colonies dead, making a loss of one per cent. Accompanying these bees there was a carload of supplies. During the past six weeks I have been very busy in nailing frames, assembling hives, and painting them. In regard to stimulating, I now have 200 Boardman feeders in use.

To-day, Jan. 8, I saw a few drones flying, and the bees are gathering an abundance of pollen. Examination shows brood in all stages in advance of the season.

In conclusion I would say that, if any beekeeper thinks this trip was all pleasure, I extend him a cordial invitation to accompany me on my return trip.

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BEES WORK MORE READILY ON BROOD FOUNDATION THAN ON THIN SUPER, EITHER IN THE BROOD-FRAMES OR SUPER

BY GEORGE T. WHITTEN

Last spring, when fitting up one of my observatory hives, I was short of medium brood foundation to fill two frames. I filled three of the center frames with half medium brood and half thin section foundation—that is, a strip of each covering half the width of the frames. As the strips of section foundation were about two inches too short to fill the space, they were placed down within half an inch of the bottom of the frame, and a piece of brood foundation filled in the space at the top. The three frames were placed in the center of the hive. The bees were put into the hive, and at once began to draw out the brood foundation, leaving the thin section. They continued drawing out and filling it with brood and honey until the outside frames were nearly filled.

When I found they would not work on the thin foundation if there was any thing else, I took the frames out, melted some wax, and painted them with a thin coat; but they still refused to work on them. I then cut these portions out and put in medium brood foundation. The bees then went to work on them, drew them out, and filled them the same as the others. They would draw the brood foundation out, and fill and cap it, up to the very last cell where the two came together.

I observed that, while they were working on the foundation early in the season, when there was not much honey coming in, they worked the foundation out very thin; but as the flow increases they do not work it out much but build on to it.

This experience led me to think that one reason bees hesitate to work in sections is the thin foundation used in them.

I filled some sections with a strip of medium brood foundation ⅜ of an inch wide, all the way around the edges, and some with thin super, full sheets, and placed them alternately in an observatory super, and I found that the bees worked on the brood foundation first in every case, and filled the sections out to the edges well.

I intend to give this a more thorough trial this coming season. Whether this has any effect on the swarming problem I do not know, for I have not had a natural swarm in four years, and only three in seven years.

Hartford, Ct.

[Your experience is quite in line with that of others. There can be no question but that bees prefer brood to thin super foundation. This preference is so marked that some large producers have been using brood foundation in their sections in place of thin super. The bees will enter supers with heavier foundation much more readily than supers with ordinary thin.

This may and probably does have a bearing on the swarming question. The principal reason why thin super should be used—and that may be an important one—is that it leaves less midrib in the comb honey; but during the past summer we tried light brood foundation in several of our section supers. After the sections were filled and capped over we asked Dr. Phillips, of the Bureau of Entomology, Washington, D. C., who took dinner with us, to try them. He, like the rest of us, was frank to say that he could detect no appreciable "gob" or midrib. In fact, if we had said nothing about the brood foundation in the first place he would have thought nothing about it except that it was very fine honey, equal to the very best in every respect.

We are coming to believe that perhaps we beekeepers have magnified the evil of using brood foundation in sections. The fact is, we doubt very much whether the average connoisseur can detect the difference between a nice section of comb honey built from brood foundation, and a comb built from ordinary thin super.

There is another factor to be considered —namely, that brood foundation will cost more per square foot than thin super; but the relative difference is not great. If by using the heavier grade swarming can be reduced, and if the bees will enter the section supers a day or two earlier, we may well afford to pay more.

Mr. Whitten's observation, that bees will thin down foundation more when they have time, is in line with experiments by the late Mr. E. B. Weed some fifteen years ago.

This is an interesting question, and we shall be glad to hear from others who have any thing to offer on the subject.—Ed.]

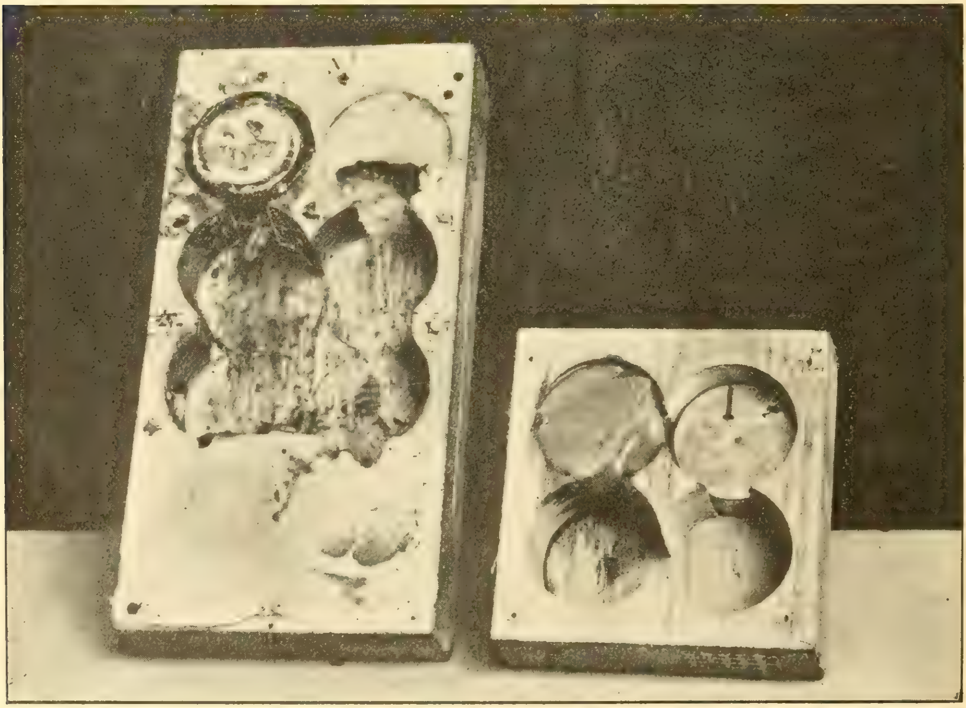
PROVIDING WATER FOR BEES AND QUEENS SENT BY MAIL

BY L. J. DUNN

There is always a loss by shipping queens and bees by mail without water, especially export shipments. With a punctured water-can, as in the one and two pound packages, the cages are in all kinds of positions in the mail-sacks, and the opening may be above the water at times, leaving the bees without water. By inserting a piece of cloth for a wick, as I have done, the water siphons out, no matter what position the cage is in. The plan has proven satisfactory with me on long shipments.

San Jose, Cal.

[We have had no opportunity of trying



Mailing-cages with water-cans to provide moisture for the bees en route.

a wick in the can of water used in the mailing-cages, but we see no reason why it should not work. In the accompanying illustration the larger cage has Mr. Dunn's water-can in the upper left-hand compartment, the wick being indistinctly shown in the side. We tried on quite a large scale a similar can shown in the upper right-hand compartment of the smaller cage. We used a very thin can or box containing hardly an eighth of water. By this plan the bees can reach the water through the perforation as long as there is any left, unless the cage stands on edge when the water is nearly gone. The use of the wick ought to give better results, provided it can be adjusted in such a manner as not to waste the water. —Ed.]

A NEW WAY TO MAKE CANDY FOR COLD-WEATHER FEEDING

BY A. V. SMALL

Under separate cover I am sending a sample of winter candy made by a process that I consider easier and safer (less danger of burning) than the cooking-down method.

The process is simply to pour into a box of dry sugar enough thick syrup, *boiling hot,* to make a mixture about the consistency of mortar. In a few hours this will cool into a solid granular cake, and then it is ready for the bees.

By experimenting I find that this candy can be made as dry as ten pounds of sugar to one of water, and it can be made as moist as seven pounds of sugar to one of water. I consider the proportion of eight to one about right. To each pound of water add an ounce or more of honey. This gives the candy a food flavor; and as the bees eat it they smack their lips and say, "It's just like mother used to make." And I don't think the candy has the flinty hardness when a little honey is used.

A convenient way of forming the cakes is as follows: Put a partition in a super and fold a piece of heavy wrapping-paper so that it will just fit in one of these spaces like a paper box. Into this put your dry sugar. If you want a cake that contains nine pounds of sugar, put six pounds in the box. You will get the other three pounds of sugar when you add your thick boiling-hot syrup.

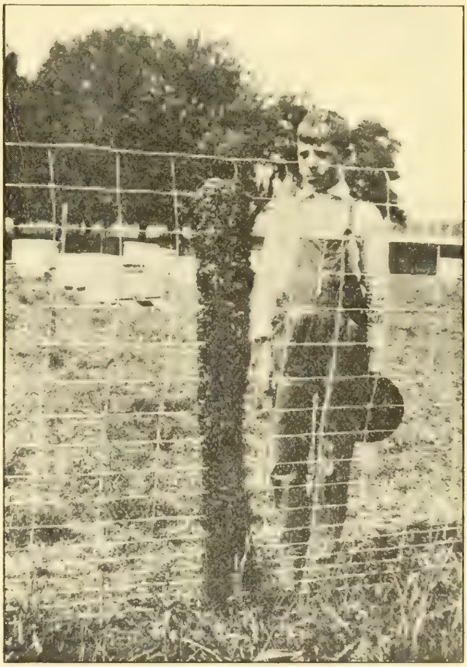
Pour in enough syrup so the sugar can be worked like mortar. Let it set until cold, when you can lift it out, paper and all. Trim the paper down to within half an inch of the surface of the candy. Place this, candy side down, on top of the frames, supported by little blocks. Now put on your packing, and with a good water-tight hive-cover your bees are ready for winter.

There are a good many advantages about feeding candy, particularly for out-apiaries. From the trend of beekeeping to-day we may expect some of these to be brought before the public in the next few years.

ARTIFICIAL POLLEN.

On page 864, December 1, Mr. B. W. Brown asks for an artificial substitute for pollen to be fed inside the hive. During bad weather in the spring I have fed graham flour, honey, and a little powdered sugar, mixed to the consistency of stiff dough. This was packed in paper tubes, ¾ inch in diameter by ten long. The tubes were closed at one end; and the bees, having access to such a small surface of the dough, ate their way through the tube slowly.

These tubes were placed on top of the brood-frames, two tubes in a hive. They were not used until after natural pollen had appeared, and then they were given to the



One of W. L. Cheney's swarms that clustered conveniently on a wire fence.

A swarm large enough to fill a wagon-bed!

Mr. Cheney, Jr., ready for work.

bees only during stormy periods. The bees seemed to relish the mixture, and I attribute the steady laying of my queens during stormy weather to the feeding of this artificial pollen.

St. Joseph, Mo.

[We have examined a sample of the candy sent us by our correspondent. It resembles moist loaf sugar, although it is somewhat softer. We should think it might crumble enough to cause some waste by particles dropping down between the combs, but perhaps not. It is simpler to make than the hard candy described in the Jan. 1st issue.

Later.—The following came to hand after the foregoing was written.—Ed.]

Your letter of Jan. 20 is at hand. I have just looked at fifteen hives having the candy slabs over the frames. There has been some crumbling, as you suggest. The slabs with the greatest amount of water crumbled most; but the slabs with the least amount of water crumbled no more than the hard boiled-down candy which I have used heretofore.

I find that, if the syrup is made too thick, it will "wet up" only a small amount of dry sugar, resulting in a slab of candy with *too much water.* I find that syrup made two of sugar to one of water will wet up a large amount of dry sugar; and by using only enough to moisten the sugar nicely we get a very hard slab which crumbles but little as the bees work it.

I have made some slabs in paper boxes about the size of a cigar-box. These were placed two in a hive, candy side up. The bees come up between the two slabs, and work the candy from the top. This is very satisfactory.

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SOME SWARMS THAT DID NOT CLUSTER UP IN HIGH TREES

BY W. L. CHENEY

I have been reading the Aug. 1st issue in regard to shinning up trees for swarms. The pictures show how obliging some of my swarms were.

I have 70 colonies, all in ten-frame hives. I am running for both comb and extracted honey. We have a fine white-clover flow. I feel like telling every one to use the steam uncapping-knife. I would not go back to the old hot-water knife unless compelled to do so.

Mason, Mich., Aug. 4.

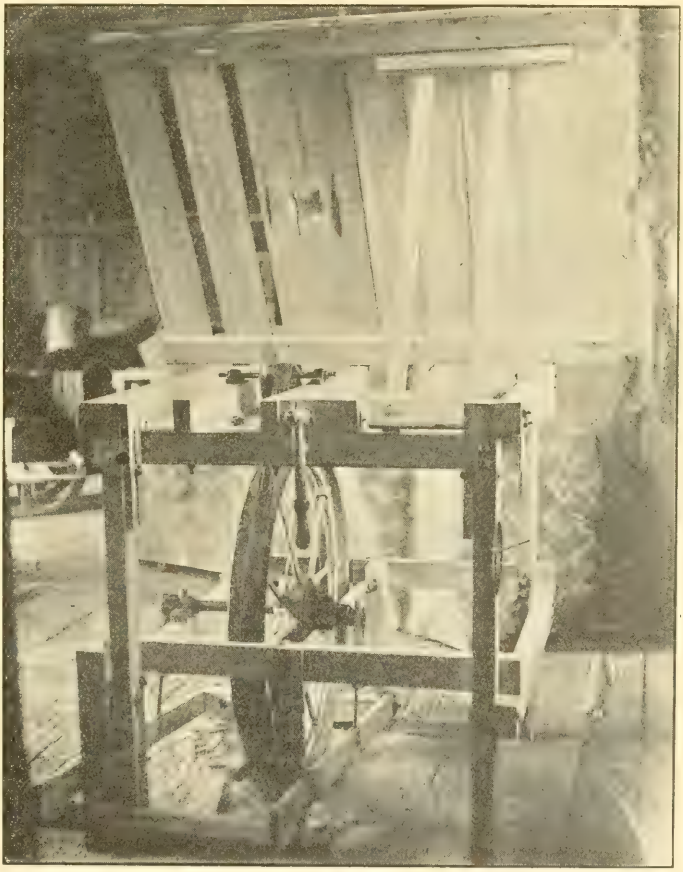
A PLEA FOR FARM BEEKEEPING

BY A. J. JAMES

Beekeeping is essentially a rural pursuit, and it is but natural that bees should be found on farms. Bees and farms have been associated in the popular mind from time immemorial, yet, as a rule, the farmers have not done a great deal toward the development of apiculture. This work has been done largely by specialists who have devoted their lives to it. The farmers usually have so many other interests that it is not to be expected that they would become very extensive beekeepers. However, there is no good reason why every farm should not have a few colonies, at least, if only for the sake of providing the family table with one of the most wholesome and delicious sweets known.

The farm is the ideal location for an apiary. There the bees can be in close proximity to the nectar-bearing blossoms, and they will also perform an almost invaluable service by the fertilization of the plants they visit. The most extensive beekeepers have their apiaries in the country frequently on the farm of some one who, for a nominal consideration, lets another man's bees gather the honey which he could just as well have for his own. If the farmer himself has not the time to devote to the bees, it would be well to get the boys interested. It is a well-known fact that when the farmer boys have a few acres of ground to work for themselves they are not so anxious to go to the cities, and this idea would work out nicely with the bees by giving them a few hives for their own. Let them learn how to handle them, and reward their efforts by buying their honey for the table. They could thus earn their spending money.

Frequently the women folks take care of the bees, and women do make excellent beekeepers. They can do all the work needed, except, perhaps, the handling of heavy hives and supers, and some of the men can usually be pressed into service for that. Bees make a fine combination with poultry-raising, and have made lots of pin money for the women.



Foot-power saw made by N. H. Wilson, Derby, Vt. It is made of 2 x 3-inch maple, and the legs are 39 inches high. The top is 2 ft. wide and 3 long. The pieces are bolted together with ⅜-inch bolts.

Occasionally some writer holds forth with a glowing account of the large profits some one has made in the production of honey. It is true that quite frequently large profits are made, but usually by those who are experts in the business. The production of honey is not a get-rich-quick game, and there are ups and downs in that line of work as well as in any other. However, the farmer beekeeper with a few colonies will usually make enough honey for his own use with perhaps some to sell in almost any year, and when the extra good seasons come he will profit accordingly. One item to be considered is the increase in the number of colonies. In an ordinary year each strong colony will usually produce a swarm, or it can be divided, thus making an extra colony, which, in a good hive, will soon be worth from five to eight dollars.

Decide now that you will keep a few colonies at least. If you have had no previous experience, do not start on too big a scale, but let the increase of your bees and your knowledge of them go hand in hand. Many a promising beekeeper has made a failure by yielding to the temptation to purchase a good-sized apiary at a bargain when he knew little or nothing about the management of it. Five or six colonies will usually be sufficient to begin with, and after experience is acquired, more bees can be purchased if the original stock does not increase fast enough.

Above all things, use only good, factory-made hives of a standard size and style. A miscellaneous lot of hives is considerable of a nuisance in an apiary. Uniform hives will be interchangeable, which is a great advantage, as it frequently becomes necessary to move them from one bottom-board to another, or to shift supers from one hive to another. There is no economy in making your own hives unless you are skilled in the use of tools, and can get lumber cheaply, and even then it will be better to buy the fixtures required for the inside of the hives, as they are made by machinery, and can be produced in a factory more cheaply than by hand.

San Antonio, Texas.

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HELPS AND HINDRANCES IN DEALING WITH FOUL BROOD

BY J. W. STINE

Read before the Iowa State Beekeepers' Association at Des Moines, Iowa, December 11 and 12.

From the standpoint of a foul-brood inspector I will try to line up briefly the helps on one side in dealing with disease, and the hindrances on the other, and to come to some practical conclusion as to the situation in southeastern Iowa the past season. The Bible says, "No man liveth to himself, and no man dieth to himself." This is as true in beekeeping as in any other line of work. We are either a help or a hindrance to one another. This leads me to say that I believe the beekeeper himself can be either the greatest help or the greatest hindrance pertaining to the foul-brood situation. I quite agree with Mr. Pellett in what he says in his article, page 856, Dec. 1.

It is surprising how many we find who know little about the inside of a hive, and nothing at all of bee diseases. Then there is the man who thinks he knows all there is to be known about bees and is not willing to learn. He is the hardest to convince. One man whose bees we inspected last summer said he had known about foul brood for 25 or 30 years. But he let three colonies die that we had marked diseased, failing to treat them as we had requested. We had to take extreme measures, much as we were loath to do so, and burn one weak colony that we knew would not winter, before he would believe we meant to carry out the letter of the law. This is the most extreme case we have found, and as a rule we find the beekeepers ready to get all the information and help they can.

We recall one other instance when we did not see the owner, but the boys tried to pilot us around through the blackberry bushes and underbrush in the back yard and show us the bees. The boys watched at a safe distance, saying those were the crossest and blackest bees in nine counties. I proceeded to give the bees a good smoking; and the poor things, so unaccustomed to such a thing as being handled at all, scurried up among the combs in the old box, glad to find a place of refuge in the furthest corner. I lifted the box from its bottom-board and found it had been placed on top of bees and evergreen brush, and the poor little fellows had to make their way through that brush all summer to gain the inside of their home. I gladly removed the brush, and placed the box back on the bottom-board, and not one of those little blacks offered any resistance—but such a way to keep bees! It is just keeping them—it isn't caring for them. Not a frame hive was in the whole bunch, and the only way I could get a peep at their brood was to tip the boxes up or break a piece of comb out of the hive to examine it. It is nearly impossible to do even this in some cases, as the hives or boxes are nailed to bottoms, and some are so badly decayed that it is nearly impossible to handle. Thus we find in this case, as in many others, the man, the bees, and the hives are the greatest hindrances.

One of the greatest helps we have found is good foul-brood and quarantine laws backed up by a loyal fraternity of beekeepers and friends. While the laws of the different States may differ somewhat, they are essentially the same so far as I have been able to ascertain. I believe Iowa has as good a foul-brood law as any State, and what we need most is a larger appropriation of money from the State to carry the law into effect in a general and educational way.

Two other great helps should be mentioned, and these are the bees and the hives in which they live. Mr. W. D. Wright, of Altamont, New York, has the following to say in an address on the subject: "The Italian Bee as a Factor in the Extermination of European Foul-brood," delivered at the New England N. S. and Canada bee-inspectors' convention at Amherst, Mass., Feb. 7, 1912. He said he always advised introducing the Italian bee wherever he inspected bees. At first the New York beekeepers were slow in using this method; but after using it a while they became very enthusiastic over the Italians. Some of the men used the dequeening method with Italians this year with good success. For several reasons I believe the Italians are better in fighting American foul brood. In regard to the hives, I will say I much prefer the ten-frame Langstroth hive to any other kind; but the main thing is to have the bees in movable-frame hives.

We have mentioned that the beekeeper is the greatest help, and I believe it is equally true that the beekeeper may also be the greatest hindrance.

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EARLY SPRING FEEDING ADVISABLE ONLY TO PREVENT STARVATION

BY J. L. BYER

During the last three months of the year 1913 I received more letters asking for information along certain lines in beekeeping than I have ever received in any six months previous. Briefly the questions asked can be summed under three heads: Spring management, controlling swarming when producing extracted honey at out-apiaries, and wintering. These queries were in the main from beginners; yet some who have been in the business for years were inquiring about running out-apiaries, while others are contemplating changing from indoor to outdoor wintering. All replies were answered to the best of my ability (which is not saying that the parties got much satisfaction), and I have been thinking it might not be out of place to give the gist of these replies in Gleanings; for, although these subjects are all well worn in some respects, yet they are questions of a vital nature to our industry, and many things in connection with them will bear repetition.

In this article I shall briefly outline my notions as to best methods of spring management; and while I do not pretend that the ideas presented will meet with the approval of all beekeepers who live in northern latitudes, yet they have proved to be the best with me; so, after all, that is the only ground I have to make any claims upon. In fact, no one is justified in debating any thing from the theoretical standpoint alone, as experience is needed to separate the chaff from the wheat in all these debatable questions.

As we have often said, the secret of any successful system of spring management is in doing the right kind of *fall* work. Having young vigorous queens in all the hives is one of the things to do in early fall. Packing the bees good and snug not too late in the season is another matter. But the greatest factor of all, aside from being sure that colonies have queens with vigor enough to build up rapidly in the spring when other conditions are right, is that I want the bees to have *abundance of good stores.* By "abundance" I mean enough to carry them through till apple-bloom, provided they are not able to get a bit of nectar before that season of the year. Some years, when the weather is favorable, the bees will get enough to keep things going in a way from the time early willows bloom; but such seasons are the exception, in our part of Ontario at least; and whenever the bees are stinted for stores in the spring the colonies do not build up as they do when they have "millions of honey" as friend Doolittle would say. Wintering outdoors exclusively, the first real work in the early spring is to see that snow is shoveled away from front of hives when weather is warm enough for the first flight. This is generally late in March or early in April, seasons varying a great deal one year with another. While I rather prefer snow around and over the hives previous to this time, yet after the bees have had a flight, if at all possible to do so I want snow kept free from entrances from that time on. After a flight, brood-rearing goes on rapidly; and with a fall of wet snow, as we are apt to get late in the season, damage is sure to result if hives are covered for any length of time. If at all possible I like to shovel the snow away from the hives the night before I expect the bees to have a fly next day. If snow is shoveled away from the entrances during a cold sunshiny day, quantities of bees will rush out on account of the disturbance, no matter how much care is used, and be lost on the snow.

After the bees have had a flight I leave them severely alone for the time being, unless there is standing water in part of the yard; and in that case I scatter straw or other material over such places, as open water in an apiary in the early spring means the death of thousands of bees when they can ill be spared. Of course apiaries should be situated on a dry place; but often, with a heavy fall of snow going away rapidly, water will stand for a few days in places that are ordinarily dry. Watch for these places and save lots of bees during their first flights in the spring.

Although I want to have all colonies as heavy as already intimated, yet I always have a feeling in the spring that one wants to be *sure* that all have enough stores. Accordingly, as soon as snow is all gone so that one can get around the hives readily, I make an examination and see that every colony has sealed stores. This examination takes but a few moments at each hive, and not a frame is lifted in the work. I take off the covers of the cases and turn back the packing at the rear of the hive, rolling the quilt forward so as to expose an inch or two of the back ends of the combs. A few puffs of smoke are sent over the bees gently if needed. Often this is not even necessary, and a glance will at once show if the stores are there or not. Bees wintering outdoors always consume the honey from the front of the hive first; and rest assured, if no sealed stores are in evidence at the rear of the hive, the colony will soon starve if not attended to. In half a day a hundred colonies or more can be examined; and after the work is over, even if not a colony is found short, it gives a feeling of satisfaction to be sure they are all right.

If one is so unlucky as to find starving colonies early in the spring, the only thing to do is to feed in the way that is most convenient. If the weather is warm enough to allow opening of hives, full frames of honey can be given; but for temporary help I much prefer, in a case of this kind, to lay the frame of honey flat over the top of the bees till warmer weather comes later in the season. Candy made of sugar is a handy method of feeding; and as a last resort good thick syrup can be given in a feeder inverted over the bees, and all securely wrapped over to prevent heat coming from the hives.

In running a number of out-apiaries this work outlined is all that I want to do before fruit-bloom comes on; and as that introduces the swarming problem I shall deal with that feature in a future article. I am not in favor of early spring feeding nor manipulation of the colonies in any way. Needless handling of frames and bees early in the spring causes hundreds of good queens to be balled every year, and explains much of the queenlessness in strong colonies that have apparently wintered well. As to early stimulative feeding, even if I felt sure of its benefits in any way, it is entirely impractical to carry out any system on this line when out-apiaries are being looked after. Roads are bad at the season, bees are all packed in winter cases, and to feed hundreds of colonies away from home regularly would mean a great expense and a great amount of work. As I have no use for early feeding unless as an absolute necessity to avoid starvation, I think that those who are following this plan of early feeding are doing a lot of work for nothing. In the early spring bees need all their vitality reserved as much as possible, and experience has shown me conclusively that the feeding of syrup made of sugar, in the early spring, wears the bees out rapidly, with nothing gained to compensate for the loss of the bees or the cost of syrup fed. With normal wintering outdoors, and abundance of stores in the hives, our colonies that have good queens are always boiling over by fruit bloom, and in most seasons many have to be supered at this time to hold back swarming. What more could be desired, even if feeding did help? for who wants bees to get in the swarming mood before the coming of fruit-bloom?

I have been asked what amount of stores I consider necessary to carry colonies through till fruit-bloom. In answer, I can hardly give any thing definite. This winter we have 100 eight-frame Langstroth hives wintering outside in one yard—a hive altogether too small for my ideas, so far as my choice is concerned. About the middle of last October these bees were fed all they would take of syrup, the hives averaging probably 15 pounds of honey each, before being finished up with syrup. The larger hives were all made heavy, but none were given all they would take. As I rarely if ever weigh a hive, I can only guess at the amount given, and would estimate it at about 35 or 40 pounds of stores to each colony. After fruit-bloom we have a dearth for about two weeks, as a rule, and *then* it will pay, and pay *big*, to feed the bees—especially to see that all colonies have open stores enough to feed the great amount of brood that will be present at that time in all strong colonies.

One other point that leads me to see the utter uselessness of early spring feeding is this: In my experience, colonies that are weak in the spring, and yet have a good queen, always have all the *brood* they can care for, but are likely to be short in *bees*. If stimulative feeding is for the purpose implied by its name, to cause the queen to lay more freely, what good will this extra laying do if the bees already have all the brood they can care for?

Mt. Joy, Ontario, Can.

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SOME DIFFERENT IDEAS ON SPRING FEEDING COMPARED

Feeding the Entire Amount Necessary, at One Time.

BY E. S. MILES

The subject of spring feeding is, perhaps, one that is about as little understood, and one about which there are as many different opinions as any question connected with our pursuit. Who has not heard the mysterious phrase "stimulative feeding," and who can say positively just what it means? One will tell you confidently that, if you feed a little syrup each day through early spring, even when the bees have plenty of honey in the hive, you will always have strong colonies for the harvest. Another will contend earnestly that, if you see that your colonies have an abundance in the fall—so much, indeed, that they will under no condition of weather run short, you will always have strong colonies for the harvest; and while you are turning these statements over in your mind, hopeful, perhaps, of an ultimate reconciliation, a third steps up and asks, "Did you ever see bees breed as they do when there is a nice flow from fruit bloom, and they have plenty of empty comb?" Now, these three statements do seem at variance at first thought; but, like many things we hear, there is truth in all, and the whole truth is there in the three propositions. There is, however, a little error mixed in the truth of these statements. (How a little error does hinder one from seeing the truth!) So if we are to get at the truth in this, as in any thing, we must begin by eliminating the error.

Experience has shown that, given a good colony of bees in a suitable hive, with good combs and an abundance of stores, so much that the bees will not use them all, no matter how bad the spring should be, they will breed up for the harvest. If this is true, there is an error in the first statement, and the bees build up, *not because* of the daily feeding, as claimed in it, but in spite of it.

But what of the question of a good flow and plenty of empty combs? Do not understand us as claiming the bees will build up under any circumstances, without all the comb the queen needs being available; and as we all know that empty comb alone will not be sufficient to enable the bees to build up, it follows that it must be the flow, or, in other words, the feed. This brings us to the conclusion that we can do no better than to have a good colony with plenty of food, and leave it alone through early spring.

But another question arises: Suppose, through some misfortune, we find ourselves with colonies not in this ideal condition. Can we feed them after the manner of the natural flow? If so, how? I have done considerable feeding of bees, and under almost all conditions of colonies and circumstances of weather; and my experience thus gained has shown that it is impossible to obtain by feeding as good results as come from a natural flow. A little reflection will show why this is so. The necessity for feeding in spring arises almost invariably from bad weather, and bad weather aggravates the troubles of feeding. On this account, no doubt, we have found it difficult even to approximate, by feeding in bad weather, the results of a natural flow.

We have always observed that, when bees are fed, and especially the first time when they are short of stores, it creates a great excitement among them. If it is daylight they rush from the hive in great numbers, and without noticing, apparently, where they came from or where they were going. In bad weather, no doubt, many never return. If this is repeated day after day, is it any wonder the colony does not increase in strength? If we wait for good weather the colony may starve, and we would feed in any weather rather than allow that.

But if the ideal spring condition is, to quote an eminent authority, "Millions of honey at our house," and if from any cause we find ourselves short of this, why not bring it about by feeding enough at one time?

It may not be possible to do this by syrup feeding in the case of weak colonies; but with good fair colonies it is quite practicable. It must be mentioned in this connection that we have no use for any feeder which does not allow the bees to take the food at a rapid rate. In our opinion, the Alexander feeder is pretty hard to beat for all practical purposes, especially if it is made large enough. Either have it large, or put two feeders on at one time. In case it becomes necessary to feed, we put on the feeders; but unless the weather is warm enough for bees to fly perfectly, we feed only in case we fear starvation unless circumstances are so we can feed after dark. Then when the first good day comes we prepare enough feed to feed each one enough to last it till there is flow enough to supply the needs as nearly as can be foretold.

If it is early in the spring, and the chances are that they will not gather much for some time, we begin in the morning and feed right along all day, or until they have enough. We find, by this way of feeding, that there is not so much trouble with robbers as where just one feed is given, for the bees soon become gorged, as in a natural flow, and while in this condition no robbing need be feared.

After this kind of feed they will care for all the brood they can keep warm, which is all one can get under any method of feeding. If, after one of these feeds, we find we have misjudged the future, and the bees begin to gather, it is not a hard job to slip out a comb or two and give empty ones in their place; or if the colony is good, give it a super of combs, preferably a shallow extracting-super. It is surprising how much the bees will use, and how much brood they will mature under this treatment. We like this way of feeding, especially for outyards, for we can fix a yard in one day so it will not be necessary to visit it again for two or three weeks.

In conclusion we should like to ask those who have been feeding after the old way, a little at a time, to try this way on a part of their colonies, and see if it is not an improvement over the old.

Dunlap, Iowa.

CRUSHED OIL CAKE AS A SUBSTITUTE FOR POLLEN

BY R. J. T. MUCKLE

Last spring, 1913, was cold so long that no pollen was to be had, and the colonies were dwindling rapidly, the queens ceasing to lay. I tried flour, corn meal, oatmeal, and finally shorts, and was gratified to see that in this latter I had got something the bees scrambled for. My nephew, for fun, put out crushed oil cake, and from that moment even the shorts were almost deserted. Queens began to crowd the combs with eggs, the bees of which are not only the largest, and incidentally the brightest-colored Italians, but as gatherers of pollen and nectar, and builders of whitest caps, the best yet produced in the many years I have been a bee devotee.

Flax seed subjected to pressure separates an oil, as you know, leaving in the press a cake of fibrous nature. This is then put through a crusher and becomes the "crushed oil cake" that I use.

This is of immense value in feeding stock. It contains about 50 per cent of protein, and is on this account, I believe, peculiarly suited to the rapid maturing and intense energy of our short-lived friend the honey-bee.

Claudeboye, Manitoba, Can.

FOOD ANALYSES; DIFFERENT FOODS COMPARED AS TO PROPORTIONS OF ACIDS AND ALKALIES

BY E. P. ROBINSON

A number have written for more detailed information than is given on p. 904 of the Dec. 15th issue, regarding food values, how the numbers 1860 and 4220 are obtained, meaning of last column in table, etc. As other readers may also have failed to understand the table fully I write these few lines instead of replying to the letters personally.

The analyses given were obtained from bulletins published by the United States Department of Agriculture, and may be had by applying to Senators or Representatives in Congress, or by paying a small price.

The figures 1860 and 4220 are accepted by nutrition experts as about the correct number of calories to be obtained from a pound of protein, carbohydrates, and fat when fully digested. A calory is the accepted unit of heat, amount necessary to raise the temperature of one gram of water one degree centigrade.

The figures given in the last column are merely the result of division of calories or food value of each food by its cost in cents. Take sugar for instance: 1860 calories divided by 5, cost in cents of one pound, gives 372 as the number of calories, or units of heat value, for each cent expended. The last column was headed "Value per cent." If it had been expressed "Value for each cent" it would have been clearer.

Another point not usually considered by students of nutrition is the matter of balance of mineral acids and bases. It is now quite well agreed that an acid (inorganic acid) condition is obnoxious in the nutrition of both animals and plants, and to be avoided so far as possible. Acid soils are neutralized or sweetened by applications of lime, and stomachs are sweetened by doses of soda and magnesia. With knowledge and care in eating, this acidity may easily be avoided, many desirable foods being highly alkaline, as may be seen by the table below.

A preponderance of mineral acids over bases in the diet may result in malnutrition and underdevelopment of the bones, and therefore of the stature and size of the growing child or animal. Rheumatism, diabetes, fevers, rickets, and acidosis also are results of an excess of mineral acids in the food, as compared with mineral bases. It should be carefully observed that it is mineral (inorganic) not organic acidity that is so injurious, the latter rarely proving obnoxious. An oddity occurs in not a few of our fruits and vegetables, they being highly acid organically, and still more highly alkaline inorganically. Rhubarb is an example, about the highest in organic acidity, and nearly the highest in inorganic alkalinity. It may be stated that all meats and cereals are acid inorganically, while all fruits and vegetables are alkaline. White bread has over four times as much excess inorganic acid as oatmeal. All who eat meats and cereals should also eat liberally of vegetables and fruits.

MINERAL ACIDS AND BASES OF VEGETABLE AND ANIMAL FOODS.

	Mineral Bases	Mineral Acids	Excess Base	Excess Acid
Eggs	484.9	517.8		32.9
Oatmeal	236.4	279.2		42.8
Beef	588.2	712.9		124.7
White bread	192.	364.1		172.1
Chicken	619.7	801.2		181.5
Cow's milk	971.14	678.0	293.14	
Onions	886.1	336.8	549.3	
Rhubarb	2581.7	886.0	1695.8	
Spinach	3670.2	1051.3	2618.9	
Tomatoes	5216.6	1512.1	3704.5	

Packer, Ct.

PRACTICALLY NO MUSTARD GROWN IN THE UNITED STATES

BY GEO. J. FRENCH

We have had the pleasure of reading the letter from J. H. Calkins (p. 38, Jan. 1) in which he inquires whether mustard is grown in the United States in a commercial way. What is ordinarily called mustard seed, in our fields, is not mustard seed, but is either wild rape seed or charlock. The only place in the United States where mustard is grown commercially is in the Lompoc Valley in California, and very little is grown there.

The best mustard seed in the world comes from England. There is some grown in Holland, a great deal is grown in Russia, and there are shipments from Italy and Austria; in fact, the seed is cultivated all over the world, particularly in the East, for its oil, which is used as an article of food, the expressed oil of mustard being bland and mild—a delicious salad and cooking oil. The strength, so called, of the mustard, is contained in another oil, which can be taken from the seed only by distillation.

The best mustard flour is not simply ground mustard seed, but is the extracted flour of various mustard seeds, blended to produce the greatest result in the volatile principle of mustard, which is required in the perfect mustard flour.

We note that Mr. Calkins wants to get in communication with the growers—but there is no one who grows mustard flour; there is one kind of seed grown in the United States, as per the above.

We think in these times of the high cost of living, that Mr. Calkins' ambition to get close to the first cost is a most commendable one. Gleanings in Bee Culture has awakened a fondness for honey in my own immediate family, and we have bought honey and had honey given to us, and this spring we are going to get closer to the source of supply, just as Mr. Calkins wishes to do—we are going to keep a hive of bees ourselves.

Rochester, N. Y.

[As our correspondent is president of the R. T. French Company, makers of mustard bran, etc., we are sure that he knows whereof he speaks.—Ed.]

REPORT OF THE SOUTH DAKOTA BEEKEEPERS' CONVENTION

BY GEORGE F. WEBSTER

The convention was held at Vermilion, Jan. 21, and was a most successful meeting. President R. A. Morgan called the meeting to order at 1:30 P. M., and Geo. F. Webster, of Sioux Falls, was called upon to discuss the subject of bees on the farm. He pointed out that bees are as necessary to the farm and orchard as the flowers are to the bees. He mentioned also the desirability of having honey on the farmers' table in place of the unwholesome glucose syrups, and the pleasure which may be derived from handling and working with bees for any one who has the taste and time for the work.

W. P. Southworth, of Sioux City, gave an interesting talk on experiences and expenses of marketing honey, which was to the point and well received.

F. A. Dahl, of Gayville, described how he produced his big crop of fancy comb honey, having supers piled nine high on some colonies.

T. M. Goddard told of his success with feeding sweet clover, both green and dry, to all kinds of stock, and had found no trouble in getting them to take hold of it with a relish.

Dr. E. A. Morgan, who has had extensive experience as a beekeeper and queen-breeder in the Northwest, led a very instructive discussion of foul brood, giving his method of using the McEvoy treatment, which must prove helpful to those who are having trouble from that source.

The afternoon session closed after it had been decided to hold a picnic next summer at either Vermilion or Gayville—time and place to be decided by the president and secretary.

The evening session was called to order at 7:30, the program opening with the president's annual address, which showed that the speaker had made the subject, "Does it pay to keep bees?" one of deep study, presenting many facts and figures to prove that honeybees indirectly keep the wheels of commerce moving by making possible great crops of fruit and grain and vegetables. He showed that, as "all flesh is grass," and that as all vegetation is derived from seed, all flowers have to be fertilized in order to produce seed; and the honeybee is one of the principal factors in producing perfect pollination. If the facts put forth in this discourse could be understood by the general public the beekeeper would be hailed as a benefactor.

The subjects of extracted honey, wintering bees, split sections, chaff hives, etc., were taken up, and proved so interesting that a motion to adjourn had to be suggested by the janitor touching the button, causing the lights to blink.

The election of officers resulted in a unanimous vote to retain the present incumbents, R. A. Morgan, of Vermilion, President, and L. A. Syverud, of Canton, Secretary and Treasurer.

Vermilion was selected as the place for the next convention, to be held early in December.

The following among others were present, nearly all of whom took part in the discussions:

Mr. Byerhoof, Geo. Carpenter, Miss Alice Cope (County Superintendent of Schools), Dr. and Mrs. Cotton, Alonzo Cotton, Andrew Dahl, T. M. Goddard, M. L. Mickelson, Dr. E. A. Morgan, Mr. and Mrs. R. A. Morgan, Miss Edna Morgan, W. P. Southworth, L. A. Syverud, Mr. and Mrs. W. A. Vincent, George F. Webster, and T. R. Walker.

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REPORT OF THE WASHINGTON STATE BEEKEEPERS' CONVENTION

BY J. B. RAMAGE

We beekeepers of the State of Washington have just held our 20th annual convention. It was the best in the history of our association. In point of numbers, enthusiasm, educational benefits, and good fellowship, we had a larger attendance than any previous convention, and the enthusiasm was at high tide at all times. Every paper and talk was instructive, and every one enjoyed the presence of the others.

We had the pleasure of having with us Mr. and Mrs. J. B. Espey and daughter, from Iowa. Mr. Espey gave us a short method of curing American foul brood without wasting so much valuable comb and foundation. His talk was very instructive. Mrs. Espey read a paper on why women should be beekeepers. It was also a valuable paper.

Our oldest member who has been a continuous beekeeper, Mr. Anson S. White, Cowichee, Wash., told us how he increased from four colonies to thirty, and secured 730 lbs. extracted honey. One of the lot was evidently very weak, and has died. All the rest are strong, and have a large winter supply of food. Mr. White has resided on the same farm for the last thirty years, and has kept bees nearly all the time, producing honey by the carload. He is one of the pioneers in the county. Mr. White and Mr. Leigh R. Freeman, editor *Northwest Farm and Home,* are the only ones left of the original members of the association.

All the papers were full of good wholesome instruction, and created a good deal of discussion, especially when the care of alfalfa and sweet clover was mentioned.

Just before the noon hour the secretary called the officers to their feet in front of the members and presented them with the badges of their office, which, he stated, had been generously donated by the proprietors of the *American Bee Journal.* After which tellers were appointed to take the names of all present and give them a badge neatly printed as follows: "Annual Convention Washington State Beekeepers' Association, North Yakima, Wash., January 7, 8, 1914." Every one present offered a vote of thanks to the donors.

The afternoon and morning of the second day were full of discussions, and filled in by music by friends of the association. The piano was generously loaned us by the Sherman-Clay Music Co., the manager being one of the singers.

The banquet was a success in every way. After the toasts the election of officers took place.

The following officers were elected:

E. E. Starkey, Prosser, President; Lee G. Simmons, Ellensburg, re-elected Vice-president (third term); Gus Sipp, Selah, re-elected Treasurer (second term); J. B. Ramage, North Yakima, re-elected secretary (fifth term).

Three new members were added to the list, with promise of more soon. The president, secretary, and C. W. Higgins were elected a legislative committee to draft the foul-brood law and have it presented to the legislature in January, 1915, and do what they could for its passage.

When the convention adjourned, the happiest bunch of beekeepers separated which it has been my lot to be associated with in my beekeeping experience.

North Yakima, Wash.

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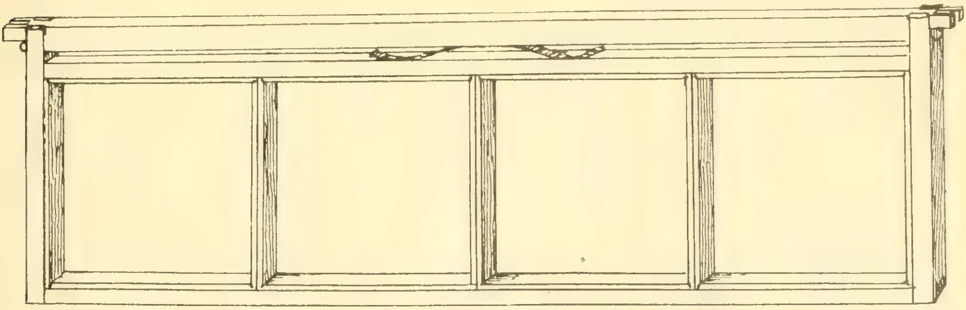
A NEW WAY TO USE THE NEW SPECIAL SECTION SUPER

BY CHARLES HOWELL

I have been putting the new special super to a test for two years for fancy comb honey, as I wanted to use a section-holder that would protect the section all around, and I find some difficulty in getting the sections out of the frames. Furthermore, I do not like the odd-sized sections. Both objections I have done away with without making any change in any of the fixtures.



By using the 4¼ x 4¼ plain section in the frames made for the 4¾ sections I place a slat 17 inches long on top of the sections held in place by one super spring, which gives the four sections good compression, so that one can handle them as easily as brood-frames. I do not tier up, as I can easily take out finished sections and fill in with empties, so this is a big saving. The ¼-inch bee-space above sections is a great help to the bees in doing fine work.

I do not think there is a super made that can beat it. One can finish up all his 4¾ sections all in the same super until they are gone, produce chunk or extracted at the sides if desired, and still be using regular fixtures.

Hackettstown, N. J., Jan. 5.

COMMENTS ON SOME RECENT STATEMENTS

BY J. T. BOWEN

HOW LONG HAS THE SMOKE METHOD BEEN USED?

A unanimous vote of thanks is due Mr. A. C. Miller for his smoke method of introducing queens. Nearly 3000 years ago Mr. Solomon said there was nothing new under the sun. At said period milk and honey was an article of food, so may be Mr. Solomon or his apiarists knew all about smoking in the queens; at any rate, Mr. R. F. Holtermann has been using it over 30 years, page 902. Mr. Hopper, of Jamaica, West Indies, of queen-rearing fame, used the same practice—to what extent I don't know; but in 1905 I saw his colored assistant run in queens at the entrance with smoke, sometimes rolling them first in honey.

FLOODED BEES.

Blessed be the beeman who has no need of a bee-cellar and no fear of snowstorms. Page 5, Jan. 1, Dr. Miller is found dreading in what condition he will find his bees in the cellar on his return home; and the A. I. Root Co. is digging colonies from three feet of snow. But "man is born to trouble as the sparks fly upward." December 30 it rained and rained, and then rained some more. The following morning found every one of my 145 colonies under water from 2 to 6 inches. Three were floating abroad. Still it rained; but a big day's work lifted them on to their stands. I feared a tremendous loss. January 8 was California weather. Every colony seemed on a rampage. Even the three that went swimming suffered no harm beyond that of moldy combs.

Page 731, Oct. 15, 1913, John Pashek uses ¼-inch mesh to keep out mice. I should think the bees would have a hard time in carrying out their dead. I use ⅜-inch, which is mouse-proof, and offers less inconvenience to the bees.

A GOOD RECORD BY A BLACK COLONY.

On page 728, Oct. 15, A. P. Haberecht has an apiary ranging from pure blacks to golden Italians, and as honey-gatherers finds no difference. My 145 ten-frame colonies are a similar mixture. My record colony gave me two big swarms (i. e., Alexander), and seven supers of extracted. I run eight frames in supers. The queen was so black I thought I would end her career in the spring, but hated to do so, as she was beating every other queen at laying. Her progeny were like their mother—not a yellow streak to indicate any trace of Italian blood. With such a record, hands up of those who would advocate changing such a queen for an Italian or any other foreigner!

On page 843, Dec. 1, Arthur C. Miller says bees don't sting dead things. Don't you believe it, Mr. Miller. Once in Jamaica, W. I., I threw away a dead rat—yes, sir, really dead. Accidentally it struck a hive. A few seconds later, not knowing the cause, you might have sworn that colony was swarming. They settled in a heap on that poor dead rat. If they were not stinging it, then what under the sun were they doing? Not till I pulled it away with a long stick did they become tame.

LIVING TO BE 100 YEARS OLD NOT YET OUT OF FASHION.

A. I. Root expresses a hope that he will live to be 100 years old. That should be easy so long as he continues to behave himself. My grandmother went home at 102 years, after bringing up to maturity 14 children. My great-grandfather went to sleep with his fathers at 100. Both were of English stock. Neither of them was a student of dietetics. They took no thought what they should eat or what they should drink.

GREAT DIFFERENCE IN COLOR OF ALFALFA HONEY.

I wonder if Bro. Chadwick is still of the conviction that alfalfa honey is always one and the same color. This is a purely alfalfa district, dependent solely on irrigation. Wild flowers have long since passed before the honey-flow, hence there is absolutely nothing to give coloring to the nectar; yet between the first and last extracting the difference in color is so pronounced that ancient Isaac, whose sight was so dim he didn't know Esau from Jacob, could, I think, make a good guess as to which was light and which was dark. If the above is not so, then I must be color-blind or I need an oculist.

BEES CHASING BLACKBIRDS.

Has anybody ever seen bees chase blackbirds? In this valley we have millions. The past season I have repeatedly noticed a bee apparently making a desperate effort to overtake one of these birds. Whichever way the bird would twist, the bee would follow.

Dixon, Cal.

Heads of Grain from Different Fields

A Vision of Spring

The trees still stand naked and brown and bare,
With never a leaf showing anywhere.
The snow's piled deep, and the winds are chill
As they sweep o'er the orchard upon the hill.

The bees are housed in their quarters snug,
With plenty of honey for each small "bug;"
And they scarcely hum; they're almost as still
As the giant trees upon the hill.

But we'll shut our eyes, and in vision see
How the spring will alter each bare brown tree.
See! out from their cozy cradles come
The leaves and the flowers, one by one,

Till even the tiny gurgling rill
Will sing of the fragrance upon the hill.
Then deep in their hearts, 'neath the pollen gold,
The blossoms a promise of fruit will hold.

And, courting the blossoms, we find the bees
In the branches swayed by a Maytime breeze.
In the happy hum of the bees we hear
The promise of honey to eat next year.

Though the trees are bare, and still the bees' hum,
We know that the glad spring in due time will come.

Gladwin, Mich. IRMA TRUE SOPER.

Trouble in Making Hard Candy

I have been trying to make hard candy for bees according to the instructions given in GLEANINGS. It is easy enough to boil it down to the consistency you recommend, but it is difficult to do so without darkening the candy and having it go back to sugar. I have tried to make it several times, and each time I got a cake of sugar about the color of goldenrod honey. Some of these experimental batches were boiled briskly, and others very slowly; but in each case the result was about the same. It is not fit for bees. If you can give any further information it would be appreciated.

St. Paul, Minn., Jan. 9. SUBSCRIBER.

[We are not sure from what you say that your candy is unfit for the bees. Goldenrod honey, owing to the fact that it is so often not pure goldenrod, varies in color from quite light to quite dark, so your comparison is not definite. The candy, as we make it, is considerably darker than most clover honey, but not dark enough to be called a dark amber. It might be called light amber, but, of course, this also is somewhat indefinite.

When you place a little of the candy in your mouth you should not be able to detect at once a strong scorched or burnt taste. We have just been eating some of our candy, and we find after it has remained in the mouth a few minutes it is possible to detect a slight taste along the caramel order—a pleasing taste rather than a scorched burnt taste. If your candy has a distinctly burnt flavor we are sure that you boiled it too fast or else too long. Perhaps you added too much water in the first place, so that it required too long exposure to the heat to evaporate it to the right consistency.—ED.]

The 4 x 5 Sections Used in a 4¼ Square Section Super

I am using 4 x 5 sections in an ordinary super made for 4¼ square sections without any change in the super except strips nailed to the upper edges to make the side walls the proper height. Instead of putting a false end in each end of the super to take up the extra space I make a special fence, the end cleat on one end of which is enough wider to make the fence reach from one end to the other of the super. The section-holders are also a little different, one upright being nailed far enough from the end of the bottom-bar to be just right for the four sections.

I use the 4 x 5 x 1⅜ sections in the same supers formerly used for the 4¼ square section. At any time if I should want to use the latter again it will not be necessary for me to pry out any false ends in the supers, nor to make any other alterations.

I use a top-bar over the sections, so that I really have wide-frame section-holders. I find that this keeps the sections cleaner, and saves lots of scraping.

San Jose, Cal. W. A. BARSTOW.

Granulated Sugar Not Suitable for Queen-cage Candy

Being a subscriber to GLEANINGS, I am presuming on that fact to address you. I also have your A B C book. In looking over its columns, I note the formula for making "Good" candy. I find that the common granulated sugar is not a success in making this candy, as the crystals will not dissolve. I have plenty of pulverized sugar, but fear to use it on account of the small quantity of starch or flour that all this class of sugars contains. Would the common unrefined brown sugar do? I note a late formula in GLEANINGS for making candy, but can not get all of the ingredients. What shall I do?

Berea, W. Va., Jan. 1. J. E. MEREDITH.

[It is not practicable to make Good candy using granulated sugar or even brown sugar. The only thing that you can use is pulverized sugar. Usually you can secure this without any starch in it. It is very possible and even probable that the pulverized article you refer to has no starch in it. We suggest that you try making it according to the directions given in the A B C and X Y Z of Bee Culture. In the mean time, if you desire candy for feeding bees during the winter we refer you to the hard candy referred to in GLEANINGS. See Jan. 1st issue.—ED.]

Wintering Bees in a Room with an Open Window; Deep vs. Shallow Frames for Wintering

Would it be practicable to keep two or more colonies of bees in a building 15 feet square, using a window four feet square as a common entrance? Other conditions being equal, should bees winter better in deep or very deep frame hives than in shallow-frame hives?

Marlboro, N. Y., Dec. 8. CHAS. E. DOWLING.

[It would not be impossible to keep bees in a room with an open window such as you describe, but we do not believe it would be advisable. The bees, after a time, would get accustomed to going into this opening, and then into their individual hives; but the difficulty would come at the close of the day when it became so dark that the bees would not be able to locate their entrances properly, and on that account would not fly out very early nor very late in the day.

The time was when it was thought the bees would winter better on deep frames or square frames than on shallow ones; but if one shallow hive is placed on top of another the advantage is in favor of the shallow frame. The bee-space between the two sections makes it possible for the cluster to reach the stores in any part of the hive, and at the same time provides a fine clustering-space.—ED.]

The Heat of a Solar Extractor

Is the heat in a solar wax-extractor detrimental to the wax? It has been asserted that the heat generated causes the wax to be too brittle for foundation. I have never tested the heat in mine, but it must go over boiling-point of water, I think. I will note it when we get a really hot day. Mine is 2½ ft. deep, and there are two sheets of glass with an inch air-space between.

St. Albans, Christchurch, N. Z. E. G. WARD.

[Heat from a tropical sun where a double glass is used in the solar extractor will sometimes scorch wax; but nowadays a single glass is used almost universally. Years ago, with a double-glass machine we fried eggs, and raised the temperature nearly up to the boiling-point. As wax melts at 140 degrees the wax might be burnt if retained too long in the machine.—ED.]

The Quarantine on Bees in Imperial Valley, California

Mr. Editor:—It would seem to me, after reading your issue for Jan. 1, that a few words from me would not come amiss. One J. Egar Ross, a part of whose letter you published, presumes to take up the cause of a few disgruntled beekeepers and writers who were trying to override an ordinance in force in this county by bringing in bees in violation of a quarantine. This letter was published in full in the *Western Honeybee.*

Space will not permit me to go into his letter in detail, so I will take up the most of the important points.

He says great injustice was done to a party who shipped in a carload of bees. Nearly every beekeeper in this county knew that these bees were coming in to test the law, and fully expected to take this into the courts, and that the railroad company refused to deliver them to the consignor, as I held the railroad company responsible for violation of quarantine, and they returned them to the consignee after keeping the wires hot three or four days.

I acted only in the capacity of an officer doing his duty, of which the owners were fully aware. The question as to whether they were healthy or not never entered the case; but they came from a quarantined county.

He goes on further to state that I permitted some to come in while I objected to others. Again he is silent as to the reason for this apparent partiality. This was before the quarantine was established, and was like this: The ordinance leaves it to my discretion as to whether or not bees could be brought in. There were certain counties that I accepted a bill of health from without question, and others I was not so ready to accept; and I explained my position in each case. Personally I treated all alike, without fear or favor.

Now as to the dog-in-the-manger argument. If the beekeepers were not afraid of importing disease would they not have gone out and bought up these cheap bees? They have as good a business instinct, and are as anxious for bargains here as anywhere else.

One more point: Mr. Ross puts himself up as an expert on bee diseases. The fact is, he did not know American foul brood when I showed him a case in his yard last spring.

I think Imperial Co. has gained a great point in the enforcement of this ordinance for which they have a progressive board of supervisors and district attorney to thank by standing back of the beemen, for which the beemen are very appreciative.

A. F. WAGNER, Inspector.

El Centro, Cal., Jan. 21.

Twin Mating Nuclei with Three Combs on a Side

I am making up a supply of twin mating-boxes a little different from any thing I have seen. I am making them with loose bottom and loose central division-board fitting in grooves cut in the ends and resting on the bottom-board with division-board out. They take seven frames the same size as the frame in the Root twin mating-box, the only difference being a long top-bar with division-board in. They take three frames to a side, making a nucleus with comb area the same as one standard L. frame. Three of these boxes united, with division-boards out and frames substituted, make a colony for winter with comb area the same as seven standard L. frames.

Liberty, Tenn., Dec. 15. J. IVAN BANKS.

[Your form of twin mating-box is almost the same as the one that we are using in our own yard. We started out with the idea of making the central division-board removable. It is of very thin stuff, and slides down into corresponding grooves in each end-board of the nucleus box. While these can be removed very readily when the hives are new, it is practically impossible to get them out when they are stuck up with bee-glue. We find it perfectly practicable to run the twin nuclei side by side, and there is really no need of withdrawing the central division-board except at the close of the season. A plan could be readily devised for making the division-board easily removable, even though it were covered with propolis at the end; but it would be quite expensive.—ED.]

Bees Working on Sawdust for Pollen

A few days ago I sawed 20 cords of green wood. To-day is a warm shiny day, and the pile of sawdust is entirely covered up with bees. They seemed to be gathering pollen so far as I could see. I noticed some of them had a good bit of pollen on their legs. Never before have I seen bees after sawdust.

Roanoke, Va., Jan. 22. HENRY S. BOHON.

[During a dearth of pollen, when the bees are fairly crazy for it, they will make things pretty lively about stables where bran is kept, or about a barn where there is an accumulation of screenings, etc. We have heard of bees working on sawdust, although not very often. Whether they really get a nitrogenous substance that they can use in brood-rearing, or whether they are deceived, we do not know. It is hard to imagine any thing nutritious for young brood in sawdust.—ED.]

No Bad Results from Feeding Thin Honey in the Fall

I have read the article on feeding sugar syrup by J. E. Hand, Dec. 1, p. 858. I consider this an important question, but it seems to me Mr. Hand is mistaken in his claim that the bees do all the evaporation while on the wing. If so, why do we find thin nectar in the extracting-super, and that, too, when the bees are gathering only a little.

I have never fed such thin feed, but for a number of years I have practiced feeding back honey thinned to the consistency of nectar, through the month of September, for the purpose of finishing sections, and have never experienced any winter loss from those so fed. On the other hand, I sometimes lost 15 per cent of those not fed, which has led me to believe that fall brood stimulation is good. Last fall I fed all my bees half a pint of thin honey each night from Sept. 17 to Oct. 4, the result of which I shall watch with interest.

Durkee, Ore., Dec. 13. J. O. BAIRD.

Color of Alfalfa Honey Differs with Successive Crops

P. C. Chadwick, of California, holds to the opinion that one kind of flower gives but one sort of honey so far as color and flavor go. He would not think so if he lived in the Pecos Valley. As alfalfa is our only honey-plant through the summer, how is it then that the nectar from the first and second crop is amber, at least, while the third crop's honey is water-white?

Dexter, N. M. C. VANDEN BOUT.

Our Homes

A. I. Root

Be glad in the Lord, and rejoice, ye righteous, and shout for joy, all ye that be upright in heart.
For of such is the kingdom of heaven.
And a little child shall lead them.—ISAIAH 11:6.

A year ago I told you about being happy over a Christmas present—a little bag of dasheen tubers that came in the mail on Christmas eve from the Department of Agriculture of our nation—*God's* gift—and I believe it *will* prove to be a precious gift to hungering multitudes. Well, I have just received another new and most precious gift; but it is more along in the line of spiritual blessings than either food or raiment. When some kind soul sends me "a book to read," of late years, I almost always feel a bit sorry; for how can *I* read *books* when the news of the world's progress lies untouched before me, week after week, and often month after month, because I *can not* get time and still take the exercise in the open air I must have. I have tried several times to read current fiction; but almost every time, after wasting precious moments, I have said invariably, "Why do ye spend money for that which is not bread, and labor for that which *satisfieth not?*" Christmas eve came, and several books. Among them was one entitled "Pollyanna, the Glad Book," by Eleanor H. Porter. (L. C. Page & Co., Boston.) I believe it first came out in the *Christian Herald* in 1912. Since then it has, during the first half of 1913, undergone "eight impressions." I read the first chapter and said to Mrs. Root, "This book is different." Although it is of late hard for me to read any thing more than about half an hour at a time, the book was finished next day. Then I turned back to the beginning and proceeded to *read it all over again,* for the latter part threw a new and unexpected *radiance* (yes, that is the word) over the whole book. In one sense it is *not* a "religious" book. I don't think a text is quoted, nor is there any mention of the Bible, until near the last part. It is a unique creation. May God be praised for the woman whom he has commissioned to deliver this message to an *unhappy* and hungering world.

Before I can deliver *my* "message" I shall have to give you a brief sketch of the book. My sketch won't spoil the book when you come to read it. Briefly, the well-to-do parents of a bright young girl planned to have her marry a rich young man; but she preferred a young and perhaps obscure young preacher. They stormed, and threatened; but, like Moses of old, "choosing rather to suffer affliction with the people of God than to enjoy the pleasures of sin for a season," she cast her lot with the young pastor, and, disowned by her family, they two moved out west and he began with the customary small salary. In the eyes of the world he didn't seem to be very successful. Oh, dear me! how little does the *world* know! Two little girls were born—"Polly" and "Anna;" but both soon died; and after giving birth to another, named Pollyanna, the poor unfortunate mother died also. When the last little girl was eleven years old, the overworked and poorly paid pastor died also, with nothing left for the poor child but a few things that had come in "a barrel" from some "ladies' aid" society. They found the child had only one relative living—her aunt Polly, who was living an idle, unsatisfied life, and who had not, after all these years, forgiven her poor sister's "want of sense" in marrying a preacher without a cent in the world. Now, this poor preacher who lacked fame and renown, and the things of this world, was (especially before he died) rich in God's Holy Spirit, and he spent the last days of his life and his last remaining *strength* in instilling into the heart and mind of that eleven-year-old child the riches of God's holy kingdom. Happy as a lark, she started out on her mission, the ladies' aid society paying for a ticket to her Aunt Polly.

Now this wise father, recognizing how difficult it is to teach children spiritual things, had been teaching the motherless girl a little "game," as he called it, and this game was to try to find something to be "glad" about, no matter what comes up. To illustrate: When the child first came, her aunt, who prided herself on her fixed rules and promptness, told Pollyanna to be sure to be on hand when the supper-bell rang at six o'clock; but the child was away off in the fields, admiring her new home. As a punishment she was told she could have only "bread and milk" in the kitchen with "Nancy." To her aunt's great surprise, and almost consternation, she replied, "Oh! thank you, Aunt Polly. I just *love* bread and milk, and I love Nancy too; and you needn't feel bad about it, one bit." In fact, her little life was just full of the beautiful text commencing "Rejoice and be glad;" and that was not all. She commenced at once teaching every one, young and old, rich and poor, the beautiful "game," as she called it, of being "glad" *always.* By accident she ran across a poor discouraged minister in her new home. He had gone off into the woods to pray. His deacons were in a quarrel. Three of the best workers in the "ladies' aid" had withdrawn; the choir had "split;" the officers of the Endeavor Society were in a jangle; and the Sunday-school superintendent had resigned; and while he was praying over the troubles, God sent Pollyanna as an angel of light to his troubled soul. Here is the way the book tells it:

"Do you like being a minister?"

The Rev. Paul Ford looked up now, very quickly.

"Do I like— Why, what an odd question! Why do you ask that, my dear?"

"Nothing—only the way you looked. It made me think of my father. He used to look like that—sometimes."

"Did he?" The minister's voice was very polite, but his eyes had gone back to the dried leaf on the ground.

"Yes, and I used to ask him just as I did you if he was glad he was a minister."

The man under the tree smiled a little sadly.

"Well, what did he say?"

"Oh! he always said he was, of course, but 'most always he said, too, that he wouldn't *stay* a minister a minute if 'twasn't for the rejoicing texts."

"The—*what?*" The Rev. Paul Ford's eyes left the leaf and gazed wonderingly into Pollyanna's merry little face.

"Well, that's what father used to call 'em," she laughed. "Of course the Bible didn't name 'em that. But it's all those that begin 'Be glad in the Lord,' or 'Rejoice greatly,' or 'Shout for joy,' and all that, you know—such a lot of 'em. Once, when father felt specially bad, he counted 'em. There were eight hundred of 'em."

"Eight hundred!"

"Yes—that told you to rejoice and be glad, you know; that's why father named 'em the 'rejoicing texts.'"

"Oh!" There was an odd look on the minister's face. His eyes had fallen to the words on the top paper in his hands—"But woe unto you, scribes and Pharisees, hypocrites!" "And so your father—liked those rejoicing texts," he murmured.

"Oh, yes!" nodded Pollyanna, emphatically. "He said he felt better right away, that first day he thought to count 'em. He said that if God took the trouble to tell us eight hundred times to be glad and rejoice, he must want us to do it—*some*. And father felt ashamed that he hadn't done it more. After that, they got to be such a comfort to him, you know, when things went wrong; when the Ladies' Aiders got to fight—I mean, when they *didn't agree* about something," corrected Pollyanna hastily. "Why, it was those texts, too, father said, that made him think of the game—he began with *me* on the crutches—but he said 'twas the rejoicing texts that started him on it."

"And what game might that be?" asked the minister.

"About finding something in every thing to be glad about, you know. As I said, he began with me on the crutches." And once more Pollyanna told her story—this time to a man who listened with tender eyes and understanding ears.

A little later Pollyanna and the minister descended the hill, hand in hand. Pollyanna's face was radiant. Pollyanna loved to talk, and she had been talking now for some time: there seemed to be so many, many things about the game, her father, and the old home life that the minister wanted to know.

I talked about the book in our Wednesday evening prayer-meeting, and at the close a lady came to me and said:

"Mr. Root, I am glad to know that you are of such a happy disposition."

"Oh! but I am not. Mrs. Root could probably tell you quite a different story. The reading of that book really startled me to think how many times, almost every day, something transpires that I am not *glad* about at all."

"*Eight hundred times.*" It keeps ringing in my ears. Shall everybody "be glad" *all the time,* no matter what happens? No, no! there are *conditions.* See Pollyanna's text at the head of this talk. It is only the "righteous" and "ye that are upright in heart." It is not enough that we "love God" and "our neighbor as ourself." After having done this we are to "be glad" and "shout for joy." I do sometimes (thank God) shout for joy, especially when I am working out among the "dasheen;" and I often feel like it when I don't shout; but, oh dear me! what a tremendous job the dear Savior has on his hands to *finish* the work of making me over so that I am really and "truly," as "Nancy" (bless *her* heart) might say, "born again" and fitted for *his* kingdom!

Years ago a physician and a church member came to me greatly excited because his reputation was being injured by what he called undeserved gossip. He declared he would go to the full extent of the law. As we were well acquainted I tried to persuade him to stick to business and let it drop. Finally I said, "Blessed are ye when men shall revile you and persecute you, and shall say all manner of evil against you falsely for my sake," but to my surprise it only made him angrier still.

"Mr. Root, is that *your doctrine?*"

I laughingly replied, "No, my good friend, it is not my 'doctrine;' but the doctrine of the Lord Jesus Christ."

A prominent business man, a doctor with quite a practice, and a professing Christian, was in *heathen darkness,* one might almost say, of the blessed promises in God's holy word. It was to him an "unexplored region."

Again, at one of our "teachers' meetings" that were always well attended by quite a number of old Bible scholars as well as an able pastor, I happened to say that *somewhere* in the Bible we were told not only to "rejoice and be glad" when "lied about," etc., but we were admonished to "leap for joy." One of the company felt sure I was mistaken; and when I didn't find it right away the whole company turned on me, and even the minister "turned the laugh on me," because I insisted our Lord ever uttered any thing so extravagant; but when I read to them Luke 6:22, 23, they made profuse apologies all around.

I mention these two incidents to show how the child Pollyanna was, in her simple faith, "head and shoulders" above the whole community, not excepting the poor, worried, and tried pastor of the church.

Once in a while we find a man (or woman), not *always* a professing Christian, who can look kind and pleasant when big quarrels are started. I know a few such. One man (who may see this) has many a time turned angry looks to smiles by his happy way of starting innocent jokes when trouble loomed up ahead. He is almost always "glad." A daily at my elbow tells of a policeman who, while looking into the barrel of a revolver in the hand of a man who declared he would never be arrested, talked kindly to the man, and finally induced him to surrender peaceably, when he would likely have killed several *more* of his townsmen otherwise.

A few weeks ago I asked you to pray for me that I might have grace to meet the boys that annoyed me a year ago. Well, for a time they seemed to have forgotten all about it until during the holidays, when there was no school. As I came out of the postoffice one day there was a yell I understood, and a crowd of boys were climbing all over my machine.

Asking the Savior to guide me I said, "Why, hello, boys! How many do you suppose this machine will pull? Climb in, all of you, and we will try." This, of course, was unexpected. By managing just right I succeeded in taking the whole load through the streets and up to the bank. It seemed risky leaving them with the machine; but I decided the good will of the town boys was of *more* value than a whole automobile, and went into the bank. I had to wait a little; and when, on looking out of the window, I saw them pulling and twisting every thing movable, my faith and courage began to fail. Just then the story in the Bible of how God told his people to stand still and see *him* fight the battle came into my mind. When I was ready to go, to my surprise the engine started promptly. At the grocery where I traded the proprietor said:

"Mr. Root, won't that gang of boys injure your machine?"

He seemed surprised when I didn't *seem* disturbed, and he then spoke again.

"Mr. Root, they are actually wheeling it away. Nobody knows where you will find it when you are ready to go."

I presume he thought it strange I didn't call the marshal; but as I saw it moving away I remembered a story of some missionaries who held a consultation as to whether they should *fight* the natives who were going to destroy the church, or trust to the power of prayer. What do you suppose happened? When I was ready to go I found my property intact, about ten feet from where I left it, and *not a boy in sight.* The old doctrine of "an eye for an eye and a tooth for a tooth" would have landed both boys and myself—where? The individual who *can* "rejoice and be glad" under all circumstances will not only be a power in his own community, but—listen to what the scripture says: "He that overcometh and keepeth my words unto the end, to him will I give power *over the nations.*"

THE DIVINING-ROD, OR "WATER-WITCHING."

On page 662 I classed the above among the superstitions. Since that has been in print I am glad to see various periodicals taking it up. The *Scientific American,* in answer to an inquirer, indorsed my statement. The *Country Gentleman* informs us that Germany is making exhaustive investigations to see if it is a humbug. Their conclusion seems to be that these people who call themselves water-witches may have a sort of "intuition" that enables them to guess shrewdly where water is most likely to be found; and, of course, this queer thing which they call "intuition" would not work with their eyes blinded. In regard to the witch-hazel or peach-tree switch they agree that the water-witch must involuntarily make the thing swing around. This explanation, you will see, admits that the water-witch may be honest and sincere. The German people call the water-witch a "dowser." With this explanation let me quote from the *Country Gentleman:*

> Our home-bred scientists have, in a way of speaking, doused the dowser with cold water. Replying to the German savants, the majority of a jury of American scientists have rendered this verdict: The divining-rod theory is all rot! "Yes, rot," asserts Professor Hering, who occupies the chair of physics at the New York University. "I don't think any competent scientist in this country has ever taken the divining-rod seriously or attempted to experiment with it. Although I have seen it tested several times I have never seen an attempt to locate water with it result in success." George C. Stone, of the American Institute of Mining Engineers, echoes this sentiment. Professor Peele, of the Columbia School of Mines, adds his contempt for the dowser, and tags him as a charlatan and faker. During the recent drouth Kansas tried the "water witch" along with the rainmakers. But he failed, or the water proved to be salty when he did find it.

I am glad to see the matter brought to the attention of men who stand away up in practical experience in matters that should fit them to become judges.

High-pressure Gardening

MORE ABOUT THE DASHEEN UP TO DATE.

When we reached here in November I asked Wesley about the last planting near a ditch where we had never been able to raise any thing, and he replied "Nothin' doin'," even with the dasheens, and said they grew only about a foot high. Some time later I investigated and found quite a crop, after all, of small tubers, very clean and solid, that had grown in almost pure white sand; and, sure enough, we got quite a big wheelbarrow load. When I was a boy (60 years ago) I was enthusiastic on "sorghum," and there was much difference of opinion in regard to the new syrup. Finally it transpired that cane on poor soil produced a much *better* syrup than that raised on rich mucky soil just right for big crops of corn. I wondered if it would not be so with the dasheen; and, sure enough, these dry tubers, almost as heavy as bullets, were the very nicest for baking. One more "discovery," and a very important one: When we first came I went out to where I planted the Government tubers a year ago, and with my knife I cut out the top of one of the largest corms, taking stalk and big leaves, and had it made into dasheen stew as I have described. Now, the big corm was left in the ground with the cluster of smaller plants all around it. I cut out so much of the corm that it left a saucer-like cavity that held rain water, and I supposed, of course, this would cause decay. Just about *two months later*, as it seemed to look all right, I took it in for dinner, and Mrs. Root called it the best baked dasheen we had tried. It had kept in the ground right where it grew, perfectly sweet and good, even when mutilated in the manner I have described.

This opens up another fact. In this frostless region dasheen may be left in the ground until wanted for the table, the year round; and, in fact, the very hills that I planted over a year ago are now bright and green, and growing finely. Of course they are greatly crowded, and the central corm has mostly dried down; but the others are still making a larger crop of small tubers. We are dividing these hills of a dozen or more plants, and making new plantations, without waiting to have the tubers die down.

Now, right in here comes something that has been only lightly touched upon. We have found a few of the *corms* that were dug and stored in November that had commenced to decay with what seemed to be "dry rot." But this was mostly when the roof of an outbuilding leaked, or when they were left in heaps before being dried out thoroughly. When the smaller tubers have been dried in the sun, and then spread out on inch poultry-netting under shelter, they have so far kept perfectly. I wrote to the Brooksville Station about it, and below is Prof. Gomme's reply.

U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
Foreign Seed and Plant Introduction
Plant Introduction Garden

Dear Mr. Root:—Your letter of Jan. 8 came to hand. We have experienced trouble in the keeping of the corms of the dasheens. The rot you speak of may be due to two things—viz., dry rot, or a fungus known as *sclerotum.* I am sending your letter to Mr. Young, in Washington, who will, no doubt, write you fully. He has charge of the dasheen project, and would rather, perhaps, give his views of the matter. This year all of our medium and seed tubers have kept well, but the corms as usual have decayed somewhat. I find that they will decay under any conditions, especially if stored damp. The corms especially evaporate while in storage. From our planting on the 3¼-acre tract, we obtained about 1093 bushels, which was not a bad yield.

I wish to thank you for sending me GLEANINGS. It is very interesting and instructive. Myself and wife both enjoy it.

Brooksville, Fla., Jan. 11. WM. GOMME.
Assistant Farm Superintendent.

U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
Foreign Seed and Plant Introduction
DASHEEN CORMS—MORE ABOUT THEIR KEEPING QUALITIES.

Dear Mr. Root:—Mr. Gomme (of Brooksville, Fla.) has referred to me your letter of June 8 inquiring with regard to the keeping of dasheen corms. The corms of the dasheen do not keep as well as the tubers. This is, no doubt, partly because the corm is the first growth that takes place, and it would naturally be the first to yield to decay of any kind. While temperatures as low as between forty and forty-five degrees may lower the resistance of the corms we have no data to show to what extent this affects their keeping qualities. It is likely that they are affected by some definite disease, such as that known as Rolf's sclerotum or one or two others to which the dasheen is susceptible.

In our last circular on the dasheen, issued in May, 1913, we advised using the dasheen corms as soon as practicable after harvesting, because of their not keeping as well as the tubers. A copy of this circular is supposed to have been sent to you; but on the chance that you have not received it I am asking that another one be sent. I also enclose herewith a sheet of special directions for baking the corms, and general directions for cooking dasheens. If any other information is desired regarding dasheens I shall be very glad to answer as far as possible.

R. A. YOUNG, Scientific Assistant.
Washington, D. C., January 16.

Permit me to add to the above, that up to the present time (Jan. 19) the safest way to keep the corms here in Florida is to leave them right in the ground where they grew, until wanted for the table. I have been using them twice a day all winter, so far, and greatly prefer them, as a steady diet, to the best Irish potatoes. Here are the directions referred to:

DEPT. OF AGRICULTURE, WASHINGTON, D. C.

THE COOKING OF DASHEEN CORMS.

The dasheen is one of the new vegetables with which the Department of Agriculture is experimenting in the Southern States. It is the staple food of millions of people in tropical and subtropical countries. The plants themselves look something like the large-leaved ornamental caladiums or elephant-ears of the garden. Various parts of the plant are edible, but the principal food is furnished by the large, spherical corm, or "tuber," and a number of smaller tubers which are attached to it in the ground.

The dasheen corms can be prepared in many ways; but they are generally liked best when *parboiled for about fifteen minutes,* and the cooking completed by baking in a *fairly quick oven.* Depending upon the size, they should be baked from one to two hours, a fork being used to test them. Corms weighing more than two pounds should generally be cut in half from top to base (lengthwise) beforehand, in order to reduce the time necessary for baking, and to prevent the chance of forming too thick a crust.

The appearance of the corms for serving is improved by scraping off the fibrous skin before boiling. If this is done and the corms are not baked so long as to make the crust thick and hard, it will be found to be of delicious flavor. If the corms are dipped in water during the scraping, as is usually done, a little baking soda should be added to the water; otherwise a slight irritation to the hands may be caused.

The interior of the cooked dasheen may be cream white, pearl gray, or some shade of violet. It is usually quite mealy, though sometimes, especially when first opened, it may be somewhat moist. The flavor is generally more or less nutty. The upper or bud end, after cooking, is sometimes rather moist, or a little fibrous, as compared with the middle and lower parts, and when so may be discarded.

As soon as done the corms should be cut open lengthwise, covered with a napkin, in a warm dish, and served *immediately.* If they have been cut open before cooking, the thin crust formed over the cut surface should at once be lifted, on taking from the oven. (This crust is itself very palatable.) The mealy interior can be taken out easily with a fork or spoon. Baked dasheens are generally drier than baked potatoes, and therefore need more butter. Salt is used in seasoning.

If impossible to serve immediately when done, the corm should be prepared for serving, as already described, or pricked several times with a fork to allow the steam to escape, and kept covered with a napkin, or other loose cover, in a warm place. If avoidable, however, there should not in any case be a delay of more than a few minutes in serving.

THE OBJECTIONABLE FEATURES IN REGARD TO GROWING ALFALFA.

I suppose there really are two sides to every thing. A periodical called *Better Farming* sums up the one objection to having a field of alfalfa. Here it is:

There *is* one objection to alfalfa: It was discovered by an Oklahoma farmer who uncovered his aching heart the other day in print, and told his tale of woe. He said: "We hear a good deal about the value of an alfalfa crop. Some people never let up blowing about it. They tell you if you feed it to your work team you won't have to feed grain to keep them fat; that it is worth pound for pound as much as bran for feeding milk cows; that it is one of the best pork-producers; that it is fine for feeding beef cattle. Give us a rest! It makes us tired! In May, just at the time you ought to be hoeing out your cotton, you have to go into your alfalfa field and cut the first crop. Then in June, just when you have a chance to go fishing, there's another crop of alfalfa to cut, and you don't go. It's blazing hot in July, and you feel like you ought to shade some, but you have to get in another crop of alfalfa. In August you want to go to camp-meeting, swap yarns, have a good easy time, and imagine you have got religion. But you can't—there's that dog-goned alfalfa again. In September it has always been your custom to visit the wife's kinfolks, but do you do it? Not much. Confound that alfalfa! In October you are done with most other crops, and you want to go off to that gambling contraption known as the county fair, and spend some of your money, but you have to harvest another crop of that infernal alfalfa. And in November in desperation you turn the cattle in on the field, and they graze on it all fall. Are you through then? Heavens, no! You've got to spend all winter feeding it up."

Eye hath not seen, nor ear heard, neither have entered into the heart of man the things which God hath prepared for them that love him.—I. COR. 2:9.

FLYING TO BE MADE SAFER IN THE NEAR FUTURE.

I am sure the friends who have followed me in my reports in regard to the development of aviation by the Wright brothers will read with interest the following, clipped from the Cleveland *Plain Dealer:*

DAYTON, O., Jan. 5.—Orville Wright, premier aviator, to-day discussed the possibilities of his automatic stabilizer, which, he declares, will make flying "fool proof" and as comparatively safe as transportation by land. It means that an unskilled operator may make a trip from Dayton to New York and return with comparative safety. He said:

"We have invented an automatic stability device which will revolutionize flight," said Wright. "It is more accurate than any aviator can be, and will make flying fool proof, or as nearly fool proof as any thing can be. I have flown many miles with it and have never touched the controls. We are now simplifying, and expect to be able to bring it to the point where it may be put in general use by early spring.

"We believe in making aerial work as safe as any on land," he said, "and we will continue to labor in that direction. We hope to see the day when it will be just as safe to board an aeroplane and take a long trip as it is at present to make this journey behind a locomotive.

"The stability device will go a long way toward making this dream a reality, and we are enthusiastic about it. Our device insures lateral as well as fore-and-aft stability. It depends in part on electricity, and we shall soon have the mechanism so perfected that it will not get out of order, and that means safety in flight.

"As may be generally known, many of the accidents in aviation have been due to what is called stalling. The aviator lets his speed sag below a certain point, the point necessary to secure sufficient wind pressure on the wings to sustain the machine, and it falls. Nothing can stop it.

"If he is traveling on an even keel when he reduces his speed below the danger-point, his machine will slide back, tail first, to the ground. Our device prevents the plane from rising too sharply; and if the speed falls below the danger-point it automatically directs the machine to the ground so that it will acquire speed enough to sustain it."

Discussing the future of the aeroplane, Wright said:

"The aeroplane will be used for commercial purposes, especially as a means of speedy transportation over vast distances. Over waste places and deserts the aeroplane will be used; in fact, wherever water is not available.

"Mails will be thus carried, doubtless, over large stretches of territory in Texas, Utah, and New Mexico. Automatic stability is all that is needed to make it wholly practical, and I believe we have solved the problem."

Judging from a pretty close acquaintance with Orville Wright, I feel sure he would not express himself so hopefully were it not that he has some very good reasons for so doing. I wonder if they will not be coming down to Florida to test this great invention.

DASHEEN, FLYING-MACHINES, AND SOMETHING ABOUT GOD'S NEW AND WONDERFUL GIFTS TO US IN 1914.

Some of you will think, no doubt, my heading embraces a queer combination. Well, perhaps it does; but the idea was suggested by a picture Huber has just sent me of our Medina plant that is to come out in our new catalog. When I stirred the world up on bee culture years ago I had, as people thought, some extravagant day dreams of the outcome of the honey industry; but it is all coming to pass, and even *more* than I ever dreamed of. Later, when I visited the Wright brothers, and told what I had seen, the world laughed again; and I confess events *have* crawled along a little slower than I expected; but just listen to what has been going on almost "under my nose," and I didn't know it. About a week ago our good friend Mr. Gault (of "Gault raspberry" fame) wrote me as follows:

Dear Mr. Root:—As you are interested in airships I enclose a circular which you may care to look over. If you come over, call on me.

St. Petersburg, Fla., Jan. 6. W. C. Gault.

Below is a copy of the circular.

ST. PETERSBURG-TAMPA AIR-BOAT LINE; FAST PASSENGER AND EXPRESS SERVICE.

Schedule:—Leave St. Petersburg 10:00 A. M. Arrive Tampa 10:30 A. M. Leave Tampa 11:00 A. M. Arrive St. Petersburg 11:30 A. M. Leave St. Petersburg 2:00 P. M. Arrive Tampa 2:30 P. M. Leave Tampa 3:00 P. M. Arrive St. Petersburg 3:30 P. M.

Special-flight trips can be arranged through any of our agents or by communicating directly with the St. Petersburg Hangar. Trips covering any distance over all-water routes, and from the water's surface to several thousand feet high at passengers' request. A minimum charge of $15 per special flight.

Rates: $5.00 per trip. Round trip $10.00. Booking for passage in advance.

Note.—Passengers are allowed a weight of 200 pounds gross including hand baggage; excess charged at $5.00 per 100 pounds; minimum charge 25 cents. Express rates, for packages, suit-cases, mail matter, etc., $5.00 per hundred pounds; minimum charge, 25 cents. Express carried from hangar to hangar only; delivery and receipt by shipper.

Tickets on sale at hangars or city news stand, F. C. West, Prop., 271 Central Ave., St. Petersburg, Fla.

I confess at first I could hardly believe that an airship right here in Florida was carrying *passengers and express matter* on a schedule, and I wrote asking if it was *true*, and if they really were making daily trips. In response I received a copy of the St. Petersburg daily for Jan 6, from which I clip as follows:

SWIFTER THAN ANY CRAFT IS THE AIR-BOAT; ST. PETERSBURG-TAMPA LINE AVERAGED TRIPS YESTERDAY IN 22 4-5 MINUTES.

Averaging twenty-two and four-fifths minutes per trip the St. Petersburg-Tampa Airboat Line is carrying out the schedules advertised, and is making time between this city and the terminal across the bay which few express trains could equal. Yesterday in the two trips to Tampa the time was, first trip, 24 minutes over and 22 back; second trip, 21 over and 24 back. This is time which is unequaled in the South by either passenger trains, automobiles, or any other passenger-carrying flying craft but the Benoist.

Tom W. Benoist, who is the head of the manufacturing company in St. Louis which makes the Benoist air-boats, is rushing his works to capacity in order to send several more machines here as soon as possible. Jannus and Fansler state that they are expecting to hear from him any day with the information that the machines have been placed in transit. With the arrival of the additional air-boats the service to Tampa will be greatly improved, and more passengers can be carried every day. With additional air-boats new trips may be arranged, and it is possible that Bradentown and Pass-a-Grille will be put on the list of ports of call. With a variety of trips which may be made by the air-boat more passengers will be carried, and the entire fleet of machines kept busy every day, is the belief.

That the inauguration of this, the first commercial line of flying craft in the world, St. Petersburg is becoming known in a way she was never before heard of, and by people who otherwise would likely never hear of this city.

Later.—After being in operation for two weeks, during which time the air-boat line has maintained its schedule without any serious mishap, the little air craft, after completing the flights made yesterday, had traveled 1002 miles. During the past week the air-boat has made its usual record in aeronautics, having completed the week by not only maintaining its regular schedule but having made the trips without any delay or engine trouble.

The air-boat will be pressed into service Sunday, Feb. 1, to bring Don C. McMullen, president of the State Anti-saloon League, who will deliver a lecture on that day in this city on the saloon question. Mr. McMullen is anxious to attend Sunday-school in Tampa in the morning of that day, and that will make it too late for him to catch the steamer and be in this city in time to make the lecture. Rather than take an automobile he made arrangements to come over by the air-boat.

The air-boat has proven a decided success for commercial travel since the inauguration of the line in this city. The eyes of the aeronautical world are upon St. Petersburg, and the air-boat line and many of the prominent aviators of this and foreign countries are watching with interest the results of the air-boat line in this city.—*St. Petersburg Times.*

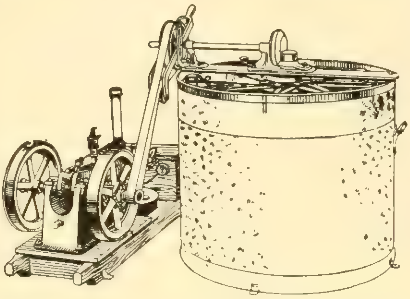
I find the daily flying machine between St. Petersburg and Tampa, Fla., mentioned above, is really a *hydroplane.* It *starts* in the water, *alights* in the water, and drops in the water again if any thing goes wrong, and in fact keeps only a few feet above the water on the whole trip of about 30 miles. Notwithstanding, passage is engaged a long way ahead. At present they carry only one passenger at a trip.

Gleanings in Bee Culture

[illegible]
Massachusetts
MAR 5 - 1914
Agricultural
College

VOL. XLII. MAR. 1, 1914, NO. 5.

ROOT'S POWER EXTRACTORS for the LARGE PRODUCER for 1914



The late W. Z. Hutchinson, when asked as to what would combine best with beekeeping, said, "The best thing to go with bees is—more bees." If more bees is the slogan, then the best equipment should be installed. This would be an outfit that will handle advantageously the product of 200 or more colonies with a minimum of time and labor.

POWER EXTRACTING OUTFIT.—The value of this cannot be gauged entirely by the number of days it is used during the season. It should be remembered that it displaces a large amount of extra equipment in the way of extra supers and combs. The extracting must be done quickly in order to hold in check the swarming that is sure to follow unless room is given when needed. The amount thus saved, including reduction of labor and time, will materially reduce cost of production.

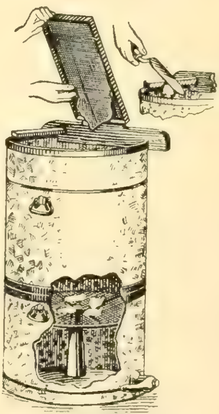
ENGINE.—This should not be selected without due examination. There are certain types of gasoline-engines that are not fitted for driving honey-extractors. Machines requiring to be started and stopped an endless number of times during the day require an engine of special construction, and the beekeeper will do well to investigate thoroughly these points before purchasing. Our new engines, the "**BUSY BEE**," are selected for and are exactly adapted for just this kind of work.

CAPPING-MELTER.—No extracting house is complete without one. We have a number of styles and sizes to select from. Illustrations of all these will be found in our large catalog. The smaller sizes are intended to be used with wax-presses, which also are shown.

HONEY-KNIVES.—For rapid and easy work our new steam honey-knives can't be beat. Extra tubing is furnished when ordered. Send for our new 34-page book, "Power Honey-extractors," describing these fully.

These equipments are supplied by various dealers throughout the country. Information as to nearest dealer on request.

The A. I. Root Co., Medina, Ohio



Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.
H. H. Root, Assistant Editor. E. R. Root, Editor. A. L. Boyden, Advertising Manager.
A. I. Root, Editor Home Department. J. T. Calvert, Business Mgr.
Entered at the Postoffice, Medina, O., as Second-class matter.

VOL. XLII. MARCH 1, 1914 NO. 5

Editorial

As reported by our California correspondent, Mr. P. C. Chadwick, in his department for this issue, the conditions for the honey-flow continue favorable in California. While in many localities there was but little rain in February, yet the general rainfall for the winter is far above the average. All reports indicate that the bees are bringing in pollen, and breeding up rapidly.

Gleanings has just been enjoying a visit from Morley Pettit, Provincial Apiarist of Guelph, Ont., Canada, and his sister, who stopped at Medina a part of one day on their way home from the National convention at St. Louis. Miss Pettit has almost entire charge of practically 300 colonies, and is an experienced beekeeper in the fullest sense of the word. She makes use of a power extracting outfit, and is an expert in the handling of extracted honey.

Mr. Pettit has been doing some splendid constructive work in Ontario, and he deserves the good wishes of all, whether on this side of the line or on the other. So far as beekeepers are concerned, this " line " is becoming more and more imaginary.

Mr. Pettit desires to correct the statement made in an editorial in our Dec. 15th issue. While a frequent contributor to the *Canadian Horticulturist and Beekeeper,* he is not the editor of the apiarian department.

DEATH OF F. B. CAVANAGH.

Our readers will be greatly shocked to learn of the very sudden death of F. B. Cavanagh, of Hebron, Ind. Mr. Cavanagh had been ill for several months, but no one was prepared for his death, which occurred on the morning of February 12th. Mrs. Cavanagh has the sympathy of the entire Gleanings force. We understand that the entire outfit of bees, etc., is to be sold.

Mr. Cavanagh was a successful beekeeper and one who was rapidly becoming an authority on many topics connected with our pursuit. He was a frequent contributor to these columns, and his articles bore the stamp of accuracy inspired by an intimate knowledge of the subject acquired through personal experience. His opinions were really the result of his own experiments, and he rarely proposed untried theories.

When we visited him in July, 1911, he seemed to have any amount of physical strength and endurance. It is hard to believe that our friend has been thus suddenly cut off from finishing his work here.

DEATH OF A NEW YORK BEEKEEPER.

We are very sorry to be obliged to chronicle the death of Mr. Chas. L. Wardwell, of Union Springs, N. Y. He was one of the vice-presidents of the Cayuga County Society, and an expert in comb-honey production. At the time of his death he had over 100 colonies, which he had packed for winter on the summer stands. He put his honey into cartons, and secured the best prices.

Mr. Wardwell died very suddenly in December. He would undoubtedly have become a comb-honey specialist of note.

A CORRECTION.

The following will explain itself:

> In your editorial in the Feb. 1st, issue I note one point which may be a trifle misleading. On page 83, second column, second paragraph, first line, the word " apiaries " is used where " colonies " was evidently intended. All the experiments mentioned in bulletin No. 158 were made in one apiary, and, indeed, such experiments would not be worth much unless they were in one and the same apiary. Colonies side by side are under the same conditions as regards the supply of available nectar, and as regards weather conditions, but comparisons could not be made between colonies in different apiaries, as there would be practically no possibility of conditions being the same in the different yards.
>
> Wilmon Newell.
>
> College Station, Texas, Feb. 13.

PROSPECTS IN FLORIDA—E. R. ROOT'S TRIP, BY TELEGRAPH.

The general cold in the North has made it colder than usual in Florida. In the northern part of the State there were some frosts, but not enough to do any damage. The weather has turned warm again (Feb. 20), and the abundant rains throughout the State give promise of a good crop of honey.

In the region of Bradentown the pennyroyal has started brood-rearing, so that the bees are in excellent condition. The palmetto and orange promise a good yield. The cool weather in Florida about the 13th, when I arrived, made it seem better to do the South first, and then take in Apalachicola, where our bees are. Later reports show that they are building up rapidly so that we shall soon make increase.

In our next issue I hope to give a full report. Next week I expect to visit the region of Stuart, on the east coast, where Poppleton and Selser are. At that point we expect to take a launch, and tour the inland waterway a short distance.—E. R. R.

KEEPING BEES WITHIN CITY LIMITS.

Seldom have we been so deluged with copy for a special number as we have been in case of this number—the special on beekeeping in cities. We have not been able to use all which we received by any means; and in order to get in a representative lot of experiences from all types of city beekeepers we were obliged to condense quite a number of articles that we did use.

There are some drawbacks which we believe should be mentioned at this time. As several of the writers in this issue point out, at times there may be trouble with neighbors who have not made a careful investigation, and who do not know very much about the subject. In several instances that have come to our notice in the past, a beekeeper having a few colonies in his back lot has been asked to move his bees outside the city limits. The beekeeper in question obligingly did so; but the one complaining has found, somewhat to his surprise, that there were just as many bees "biting his grapes" as there were before. The point is this: Bees are not observers of local ordinances; and unless *all* colonies are moved some two or three miles outside the city limits there probably are just as many bees found inside the city as ever. But since there are likely to be bees in trees, etc., near the city, it is next to impossible to prevent bees from flying about inside.

In another way, however, bees within city limits may sometimes prove to be a nuisance. We refer to bees kept in such a place that the natural line of flight is across some street or alley. In this case passersby are likely to be stung occasionally; and if one person is stung more than once he is pretty likely to make a vigorous complaint, which complaint is really justifiable. In our opinion, if a place for the bees can not be found where they will be compelled by surroundings to fly pretty well into the air when they leave the hive, or where they will have a natural line of flight away from thoroughfares or other places where there are likely to be people passing back and forth, it would be better to make no attempt at keeping bees at all. Nearly always, however, the hives may be placed where the bees will molest no one. Oftentimes if they are located on a roof, even in a crowded district, their presence will hardly be known.

The beekeeper should select gentle bees, also, and he should be very careful not to stir them up during a time when they are naturally a little irritable, as during a honey-dearth, when they are inclined to pry into everybody's business but their own.

Summing up the whole matter we may say that it rests entirely with the beekeeper as to whether his bees are a nuisance or not. By taking some thought as to the location of the hive, to the selection of the bees, and to the time and manner of manipulation, he can avoid all trouble. Carelessness regarding any of these points invites trouble.

ARE CITY BEEKEEPERS A MENACE TO THE INDUSTRY IN GENERAL?

Frequently some of our professional beekeepers deplore the existence of the large army of beginners in beekeeping; first, because they produce considerable honey and contribute to the overstocking of city markets, thus lowering prices; second, because disease is likely to get into their yards, so that other bees are in danger.

To the first of these points we should like to say that the average beginner, for a number of years at least, produces more enthusiasm and interest than he does honey. In other words he creates a much larger market for honey than he can possibly supply himself. Furthermore, the average beginner gets a better price for his small crop than most professional beekeepers do. It seems to us, therefore, that fears along this line are groundless.

As to whether a beginner allows his bees to become diseased, thus endangering the health of the other colonies in the vicinity, we should say that this depends upon the beginner. In our opinion, trouble along this line is more apt to come from careless or overworked farmers who really have no interest in the bees at all, and who keep them merely because their fathers used to keep them, or because they are able to hive occasionally a stray swarm. A beginner who is interested in his bees is not likely to foster disease. In case of city beekeepers especially (at least those who are as bright and as up-to-date as the writers of the articles used in this special number) we believe we have very little to fear from foul brood or other bee disease.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

MY first start in beekeeping was in the very center of a place now a city (Marengo), with an apiary of one colony in a whole sugar-barrel.

"AS the soil, so the honey," is the caption of an item in *Leipz. Bztg.*, 125, in which it is stated that analysis of soil from Ramboulliet shows 30 per cent more iron than soil from Bid; and honey from Ramboulliet contains 75 per cent more iron than Bid honey.

MESSRS. Doolittle and Root agree that bees may be hauled with no inconvenience in hives with entrances open. Certainly this mode of transport would not be tolerated in Europe.—*L'Apiculteur*, 32. I think Doolittle and Root hardly commend it as a general practice.

The British Bee Journal has uniformly opposed beet sugar for bees. I never knew just way. But now I find, p. 510, that it is difficult to purify beet sugar and to get rid of all the potash salts. "These salts cause fermentation, and it is principally for this reason that cane sugar is to be preferred."

DR. A. LUDDEN thinks my bees were cross last summer *in anticipation* of a partial stoppage of the flow. At Elwha, Wash., he says it is "the rule that 24 to 48 hours *previous to closing* of a honey-flow they get hostile, and 'tis not safe for any one to go into the yard, and honey coming in at a good clip too." I wonder if it can be possible.

FOR the first time in many years I had some combs filled last summer, for extracting. They were extracted in January, of course after warming up. It went better than I expected, but I don't recommend January as the best month for extracting. I have an up-to-date extractor; and what fun extracting is, compared with extracting years ago with the ancient Peabody!

THAT able authority, D. M. Macdonald, says, *British Bee Journal*, p. 478, "I do hold that with us blacks live longer than Italians, the latter being here a softer race." No doubt that canny Scotchman had a vision of a lot of American beekeepers jumping on to him; hence the cautious "with us" and "here." Yet he may not be entirely safe from some of his own countrymen.

NOS. 29 and 59 stood back to back. June 10 queen-cells were killed in 29 and its queen removed. June 16 No. 59 swarmed and returned, its clipped queen not being found. Within 15 minutes No. 29, whose queen had been removed, swarmed out, and a clipped queen was found in front of the hive. It was the queen of No. 59, which had entered No. 29 while the swarm of 59 was in the air, and then ordered a walkout in No. 29.

THE few hundred pounds of extracted honey I produced last season I put on the home market in 5-pound friction-top pails. I determined I wouldn't have any worry taking it back to liquefy it or to explain because it candied after customers got it. I made sure it wouldn't candy in the hands of customers by letting it candy before selling it. If they don't want candied honey they don't have to buy it. But it sells all right, and I've heard no complaint.

ALLEN LATHAM is making trouble. He wants to know, Mr. Editor, on what ground you base your disbelief in the fanning of bees in the midst of winter cluster. He says we should not disbelieve simply from ignorance—fuller information may change belief—hard to prove a negative—and more of that sort. Jan. 13, 14, mercury hovering around zero, and wind howling, he went to his hives and all were noisy, some buzzing almost as much as in a summer nectar-flow —no bees at entrance, no warm air issuing, and he wants to know what's wrong with thinking the noise came from inside the cluster. Here's the way it has always seemed to me: We are told that when very cold the bees shrink into an incredibly small cluster, and when crowded thus close what room is there for fanning? Still, just to accommodate A. L., I'm ready to change my belief on later and fuller information, and leave you, Mr. Editor, to say why you disbelieve. [We know that outdoor bees sometimes set up a roaring in very cold weather; but we always supposed the condition was abnormal. When bees in a compact ball are in a state of semi-hibernation or hibernation, if you please, in which they seem to go into a dead sleep, without a tremor of motion except a slight tremble of the wings when the hive is opened, there could be no buzzing or fanning. On the other hand, if we open up an outdoor colony in the dead of winter and find the cluster scattered over the frames, and buzzing, we feel sure that that colony will die very soon, even though it be the strongest stock in the yard. Yes, doctor, we are in line with you, but we are willing to change our belief if necessary on fuller information.—ED.]

Notes from Canada

J. L. Byer, Mt. Joy, Ont.

Normal winter weather here in Ontario since last Notes were sent in; and to-day, Feb. 10, we have about 6 inches of snow covering the clover that we hope to get some honey from next year. We had much more snow, but the rains took it away. Bees are wintering nicely so far—last flight Nov. 23.

* * *

THE SHORT COURSE AT GUELPH.

The writer spent two days at Guelph during the "Short Course" in apiculture. As I fully expected would be the case, there was a bumper attendance—probably about 100 in steady attendance for the different sessions. One of the best things in connection with the different lectures was a series of demonstrations on queen-rearing by Mr. J. A. McKinnon, of St. Eugene, Ont. Mr. McKinnon is more at home in the real work of producing good queens than he is before a big crowd of students, but nevertheless anybody could see that he was thoroughly practical and fully understood this very important part of beekeeping. Mr. McKinnon is one of our younger men in the business, and one of the very few who make a specialty of raising good queens for sale here in Ontario.

* * *

DIFFERENCE IN VARIOUS STRAINS OF BEES IN RESPECT TO CAPPING HONEY.

Dr. Miller speaks in last Gleanings about Italians for capping comb honey, and says that his compare favorably with other breeds in that respect. Certainly there is a wonderful difference in strains of this breed so far as capping goes, as one good breeder, so far as his stock is concerned in other respects, has Italians that would not do for comb honey at all, if fancy sections were to be produced. Invariably, when bringing in combs to be extracted, the helpers in the honey-house notice the dark-looking cappings and say, "Some more honey from Mr. ——s' bees." However, as a rule these bees are good stock, and for extracted-honey production their habit of placing cappings so close to the honey makes no difference.

* * *

CO-OPERATION; THE TRUTH IN REGARD TO THE COMMITTEE APPOINTED TO ADVISE ON PRICES OF HONEY.

Much is being written on co-operation, and just at present, no doubt, many are wishing that we had some good system in operation. The writer has always been in favor of the principle of co-operation, but he is not even yet convinced that we can successfully operate such a system when we have so many difficulties to overcome. Beekeepers are so widely scattered over the country, so differently situated in the matter of being large or small producers, and there are so many different qualities of honey produced, etc., that the more I consider the subject the more herculean the task seems when we try to devise ways and means of forming a co-operative association. One of the serious questions in a matter of this kind is the financing of such a project to start with; but one of the *most serious* obstacles of all, as I see it, is the fact that among beekeepers, as in other callings, there are always a lot who are selfish and unreasonable. This leads me to remark that I had not much thought of co-operation in mind when I started to write this note, only in so far as a matter of comparison as to what we might expect if we were trying to run a co-operative society.

* * *

PARCEL POST IN CANADA.

To-day, Feb. 10, Canada at last starts out in giving us a parcel-post system. A glance over the proposed system as now in force seems to suggest that there is lots of room for improvement before it will interfere much with the express companies which have things pretty much their own way at present. As in the United States, the zone system is used; but the regulations now in force, except in a very few instances, are not nearly as liberal as those across the line. The worst feature is that the first zone takes in a distance of only 20 miles. For that distance the first pound is 5 cts., each additional pound 1 cent extra. The second zone takes in the limits of any one province in the Dominion, and the rates are about double those of the first zone. In other words, it would cost me as much to send a parcel to Toronto, which is 22 miles from my home, as it would to send one to Port Arthur, on the north shore of Lake Superior. However, we are now committed to the principle of parcel post, and with lots of judicious kicking, we shall get something that will make the express companies take notice.

All together, six zones are arranged for, and for the longer distances small parcels can be sent quite a bit cheaper than by express. One of the first changes that will be sure to be asked for is that the first zone be extended to 50 miles at least.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

SEASON PROSPECTS TO DATE.

January was liberal with us in the matter of moisture, an average rainfall of eight or more inches having fallen during the month. At some places the fall was excessive, doing much damage. At Santa Barbara eleven inches was recorded for the storm, while at other points there was even more. Beekeepers are generally much encouraged at the prospects, very substantial advances in seasonable conditions having come with the rain. The ground is wet deeper than it has been for two years, with warm weather, early breeding, and excellent growth of honey-plants to encourage us still more. We are not yet assured of a honey crop, however; but an occasional good rain during February and March, with showers in April, and continued warm, should bring us an old-fashioned bumper crop for the season of 1914.

Feb. 12.—No rain so far this month. Bees coming on fine.

* * *

BEEKEEPING IN THE CITIES.

The back-lot or back-yard beekeeper is the future keeper of hundreds or perhaps thousands of colonies. In a recent issue of the *Country Gentleman* I read this: " The best way to become a successful dairyman is to grow up in the business." With the bee business it is equally true. In fact, I believe there is no branch of agriculture that requires as intimate a knowledge to make it a success as does the bee business. At any rate, the back yard is the incubator of future beekeepers. I wonder what per cent of our beekeepers of to-day had their start in this small way. My guess would be that fully 95 per cent start with a few colonies. I know of a few men, however, who started at the top, and are working down; and they are coming down faster than many of us went up. The small beekeeper is not looked upon with favor in this part of the world, as he is considered a nuisance on account of disease spreading more rapidly with him than with the large beekeeper, who usually looks after his colonies a little more closely than the beginner. Be that as it may, we have the small beekeeper here, and he will be ever bobbing up while time lasts, so the inspector may as well give him a show. I enjoy the little fellows, and I like to converse with them, tell them of foolish things I did years ago and hear them confess to laughable mistakes.

THE CITY BEEKEEPER STIMULATES THE HONEY MARKET, AND THUS HELPS THE PROFESSIONAL BEEKEEPER.

The small beekeeper is a better advertiser than the large one, for the large one does not have time to go and hunt a market, but looks for a wholesale house to take his crop, while the little fellow goes out and sells to his neighbors and teaches them to use honey. Then when the little fellow has a crop failure his patrons hunt a market elsewhere, and thus they remain permanent users of honey. Many of the advances that have been made in bee culture are not due to discoveries in large apiaries, but are the result of inquisitive experimenting by the small beekeepers. My knowledge of the bees is very largely gained by keeping a small number of colonies always near my door where they can be watched daily.

Five years ago I decided to start in the bee business in a small way on the back of my city lot, my plan being to buy a few colonies and work up just as though I had no apiary at another place. So I purchased three colonies and went to work just as if I had my first colonies. I have now increased them to such an extent that I have 30 colonies in my back yard, to say nothing of ten that were taken to the apiary three years ago. From them I have taken considerable honey, done much experimenting, and, best of all, have enjoyed their presence for the pleasant sounds they make and for the additional inspiration they have suppled me.

* * *

I fear Mr. Foster is figuring wrong with his poultry expense. He counts his time at twenty cents per hour, which I think should be added to the other side of the ledger. In the summer I put in from three to five hours on weeks days with my cows, chickens, bees, and garden in general, in addition to my regular day's work of eight hours. If I figured this time I should be losing on an average of $2.00 a day, and should soon be bankrupt. But my view of the matter is that I am salvaging that much time that might otherwise be an entire loss. When my time is worth full value, Mrs. C. or one of the children gets the job of feeding the chickens. There is a lot of time in agricultural pursuits that is figured at very much more than it is worth.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

WILD FLOWERS IN THE FOOTHILLS IN APRIL.

Bees located near the mountains have the advantage over those out on the plains. The wild flowers are in bloom in the foothills during the fore part of April, and the bees that reach this bloom are well supplied with pollen, and breed up faster.

* * *

RYE GRAHAM FLOUR FOR BEES.

I would urge every beekeeper whose colonies may cause the neighbors trouble in the spring to put out rye graham flour. Many farmers hold a prejudice against bees because they frequent watering-troughs, feed-stalls, etc. The beekeeper owes it to his neighbors to cause them just as little inconvenience as possible. One of the marks of a good neighbor is neighborliness; and the beekeeper can manifest this spirit by keeping the bees so well supplied with the best water easily obtainable near the apiary that they will not frequent other places; and by putting out flour or meal the bees may be kept away from the sheep and cattle feeding-bins of the farmers. Put out the flour and water *before* the bees get to frequenting other places.

* * *

SLOW GERMINATION OF SWEET-CLOVER SEED.

The interest in sweet clover is uncovering some important facts regarding the plant, one of the most important of which is the slow germination of the seed. That this is not understood generally has been shown to me by the letters received from prospective customers and from others who have bought seed. One man wrote to me, asking if I could guarantee 80 per cent germination of the seed. The chances are that very little seed (if any new seed) will test that high. Old seed seems to germinate better than new. The amount of seed required to sow to the acre could be greatly reduced if the germination percentage were higher the first year. The slow germination is caused by the hard seed coat that is so impervious to water that the seed can not sprout readily. All who are intending to sow sweet clover should thoroughly post themselves upon the characteristics of the plant, and the seedsmen should furnish all possible help also. The sweet-clover bulletin by J. M. Westgate, published by the Department of Agriculture, Washington, will be of great help to those interested.

HOME-MADE BEE SUPPLIES.

Mr. W. L. Porter differs with me on the question of home-made bee-supplies. It is probable that, if we both had the same set of facts placed before us, we would agree. The average beekeeper can keep bees just as well in a box or home-made hive as in a factory-made hive; and as he makes no profit to speak of from his bees he is better off than if he had them in factory-made hives, because he has less money invested. However, the readers of GLEANINGS or the *Review*, where my article originally appeared, are not average beekeepers. I believe from my observation and acquaintance among beemen that the majority of up-to-date beekeepers have been well satisfied with their results in making some of their supplies. No one beekeeper is so situated that he can make *all* his supplies, and this was stated in my original article, I believe. I would distinguish between the average beekeeper and the average *reader* of the bee journals.

Most of the western beemen who make any of their supplies have them made at a planing-mill, so that they are only partially home-made. In the actual making of home-made goods there is little of it done; but by having hand or power saw the beekeeper will find it a wonderful convenience. The way the sun warps lumber in the West soon makes factory and home-made hives look much alike, both requiring constant renailing and painting.

Quite a large proportion of our most successful beemen figure that it pays to have some supplies made at home to their order. Several beekeepers I know, who count their colonies by the hundreds, make their own and their neighbors' foundation. One of them who made up several hundred pounds of brood foundation last winter told me it was his first experience, and that it was about as difficult as turning a clothes-wringer.

Personally I do not want any home-made frames or section-holders or other inside hive furniture; but I am using some hive-bodies, super-bodies, covers, and bottoms that are giving me as good satisfaction as any factory-made goods I ever owned. I have made mistakes, and always shall; but the man who can not correct his first mistakes will not make a beekeeper.

Conversations with Doolittle

At Borodino, New York.

WHEN TO SET BEES FROM THE CELLAR.

"Will you tell when the bees should be set from the cellar in the spring? Do you think it would be any advantage to set them out the latter part of February or the fore part of March if there is a good day?"

The time of setting out may depend a little upon the time of their last flight in the fall. If you set your bees in the cellar the 15th of November, and they had a good flight the 14th, they would be likely to remain in the cellar in good condition two or three weeks longer than if their last flight had been on Oct. 22, as was the case in this locality several years ago. One beekeeper said that he knew that, if bees had a good flight as late as November 15, they could stand the confinement necessary from that time till the fore part of April. I do not feel so sure about this.

My experience has taught me that the time of putting in and setting out, within reasonable bounds, has very little to do with success; and this I say after having set the bees in as early as November 3 and as late as December 18, and having set them out as early as March 5 and as late as May 2. I think I can tell what the results will be as early as January 20—how the bees are going to come out in the spring, and this at a time when I am without any knowledge as to what the length of the confinement is to be. Some years I am sure that, if spring were to open by the middle of February, as it does generally in May, and the bees were set out then, there would be spring dwindling, with many colonies too weak for the first surplus, while at the same time other years I am sure that they could bear confinement in the cellar till May 1 and come out bright and strong for the harvest from white clover. If, on November 15, I could be informed as to the character of the stores which the bees have in their combs, the age of the greater part of those going into their winter repose, together with the temperature and moisture of the air in the cellar, I could tell pretty nearly how they would come out. But these are things which we are not always sure about, as a cool wet season is likely to give inferior stores and bees with a low vitality, while an open winter makes the control of temperature and moisture much more difficult.

Some say that, where bees seem to be wintering poorly in the cellar from any cause, they should be set out the latter part of February, or on any favorable day thereafter, for a flight, and at night returned to the cellar; but from years of experience along this line I do not find that they are profited thereby enough to pay for the labor required. Others advocate setting all colonies out when any are so treated; and where any colony is so "sleepy" that the bees do not seem inclined to wake up we are told to pound on the hive while it is still inside the cellar, so as to stir them up so they will be ready for their purifying flight before the cool of the evening draws on. Locality may make a difference in this matter; but somehow I doubt it. Here in central New York, when the bees sleep very quietly in the cellar, as they are doing to-day (Feb. 6), they do not need a flight at all. And when we are likely to have spring dwindling, they are so restless that they will run out and spot the hives in front before this time, and, if moved at all, will rush out pell-mell with scarcely any reference to the temperature. At such times as this last, it would seem that a flight might do some good, and for a few days after setting in they do seem more quiet; but when the time of surplus comes, colonies set out prove no better than those left in, or not enough so to pay for the labor spent in getting them out and back in again. On the other hand, if they are left out they all generally perish.

I used to try to convince myself that the time to set bees out is when the blossoms of the soft maple and the elm open, and once wrote that, when the bees can come in with pollen obtained from these flowers an hour after setting out, one bee with its fellows can rear and bring on the stage of action three other bees, while an earlier setting-out would mean that three old bees would be required to raise one young one. I verily thought this was just as it should be; but from careful watching and experimenting, I am free to admit that the best results are obtained by setting out somewhat earlier than this, or when the buds of these trees begin to show their expansion by the separating of the outer covering which has protected them during the winter. In this way brood-rearing has gotten a little headway by the time the bloom opens, and then the pollen coming in is of greater value by pushing a greater volume of brood through the activity resulting from the scramble in preparing chyle for that already in the cells. The temperature should be 50 degrees F,

General Correspondence

A BEE FARM ON A ROOF IN NEW YORK CITY

BY HARRY HIRSCH

Country, town, or city, it's all the same—you can keep bees anywhere. If you have a back yard or a back porch, that will do. And if you have only a flat roof with a vista of chimneys and house-tops, that site is as good as any.

In my estimation the most important factor in city beekeeping is the careful selection of stock. Bees inclined to viciousness and swarming will not be tolerated in a crowded city. There is only one strain of bees fit to cope with the exciting conditions governing a city apiary, and that is the Italian.

So gentle and unobtrusive are my Italians, that, although I have been keeping them on the roof for three years, neighbors who live in the surrounding apartment-houses will not credit the assertion that there are thousands and thousands of bees living just beneath their windows. "Why," they exclaim, "we never see them; and, besides, we never hear of any stings in the neighborhood." Then I usually hasten to explain that an experience based upon several years' acquaintance with bees has convinced me that stings are never heard but felt. Always a lover of nature I seek to set right my fellow-beings on matters as pointed as these.

Italian workers, besides being perfect ladies while "out shopping," as one little neighbor has so aptly described it, are also remarkably tractable when bearded in their den. This trait is of prime importance; for to get in touch with nature without getting touched by it is a delicate problem in beedom.

The only adequate hive for a busy city man is the double-walled chaff hive. To it I must ascribe my success, as it not only conserves the heat during winter when every icy wind has full play across the exposed roof, but has great cooling qualities during summer when the tin-roof, under the action

The sweetest spot in New York. A sheltered place on a roof is an ideal location for bees in a city. These colonies have been on this roof for three years.

Smoking 'em up. Although on the roof of a tall building in the largest city in the United States, the colonies have averaged nearly thirty pounds of honey per season.

of the sun, deludes itself into the belief that it is an oven in full blast whose sole duty is to bake both the hives and the bees so unfortunate as to alight on its surface.

In addition to these commendable features of the double-walled hives, the amount of labor they take off the hands of the city beekeeper at the approach of winter must not be overlooked. There is no need of packing, nailing, throwing the bees in a tumult, and creating a general mess of excelsior, hay, shavings, roof-paper, newspapers, and a thousand other improvised odds and ends, as is customary with single-walled hives. The following spring, there is no fuss in unpacking, with the risk of chilling the brood in the hives by the sudden cooling of the single walls. With double-walled hives all is calm and tranquil with the beekeeper. Peace reigneth in his soul and in his hives.

A city man is a busy man. A city man's hobby must not encroach upon his regular occupation. It must not tend to cause him anxiety during business hours nor enforced labor out of them. The moment it does this, it ceases to be a hobby and becomes a responsibility and a bore.

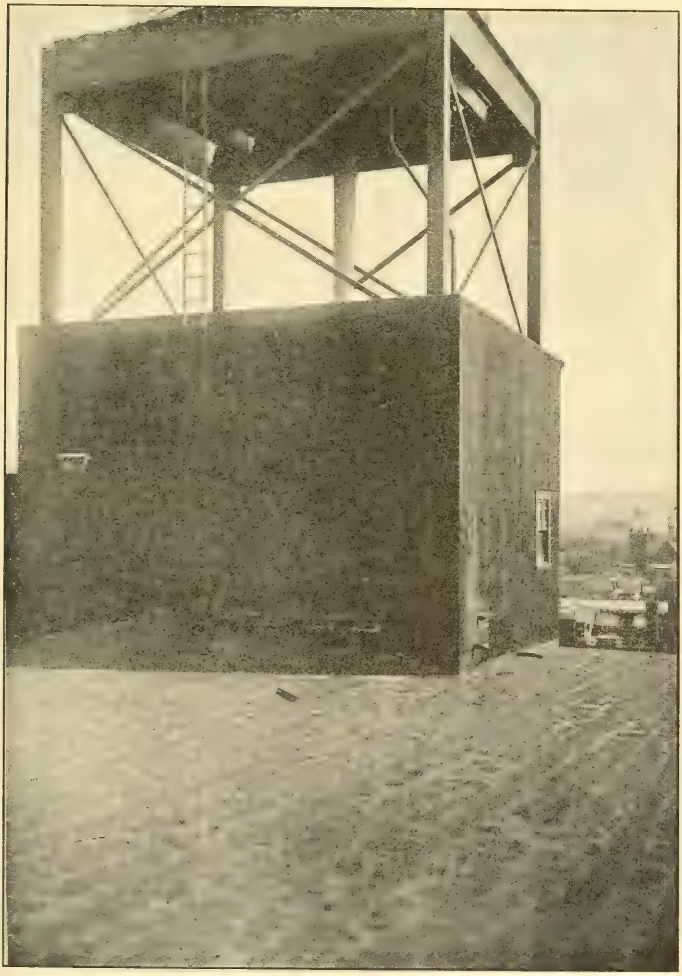
Now, the conditions governing my apiary are peculiar. It is situated in the center of the largest and busiest city of America. Miles and miles of dwelling-houses surround it, with no open country for a long distance off. Where, then, do the bees obtain their honey? Why, from a city park — Central Park. Is there enough nectar to keep three hives going? you ask. Going! Why, it's all I can do during June and July to keep the enthusiastic inmates of the hives from moving over to the park *en masse* and staying there. Central Park is an unusual park. Within its one and a quarter square miles it contains trees and shrubs from practically every part of the world. The sylvan paths of this urban arcadia present a bewildering array of alien visitors. We discover a Chinese pagoda-tree growing by the side of a Norwegian maple; a Manchurian barberry nestling in the shade of a pine from the far-off Himalayas, while in the distance the dark foliage of a Crimean linden serves as a background for a swaying bamboo-tree. Basswood (linden), the standby of honeydom, is well represented here. Louis Peet, in " Trees and Shrubs of Central Park," gives the varieties of this tree as seven, mostly European. There are fully thirty-five specimens of the linden in the park, though whether they are all honey-producers I am unprepared to say. In addition to the strange collection of native and foreign flora, Central Park contains a large botanical garden where tropical plants such as bananas, cotton, oranges, etc., are kept under shelter. During the hot days of

Taking a dare.

summer the doors and windows of the greenhouses are kept open, and the place is visited by a constant stream of bees.

In short, variety rather than quantity of bloom is the predominating feature of the nectar pasturage in Central Park. This explains why my honey embraces more different varieties of flavors, fragrances, and colors than is dreamed of in the philosophy of the rural beekeeper. Frequently have I emptied a pollen-cell of its little pellets and found them of so varied a hue that, if arranged in a row, they would go far toward giving a fair example of a spectrum.

Extracting is out of the question with so few hives. I merely run them for section and comb honey in shallow frames. I use the Danzenbaker super, and place sections and shallow extracting-frames into it alternately. Whatever bait sections I may need (and I find them indispensable) are secured by inserting six sections of foundation in an empty Hoffman frame. The sections can be made to fit snugly with the aid of matchsticks. The frame of sections is then placed in the hive-body to be drawn out. When the sections have been drawn out about a quarter of an inch they are removed from the frame and distributed in the supers. During the honey-flow I practice severe contraction of the brood-frames. I know that this is condemned by most beekeepers; but the end justifies the means, and a nice array of sections at the end of the season covers a multitude of sinful contractions. By contraction and a judicious use of bait sections I have averaged 16 section boxes and 12 lbs. in extracting-frames from each hive.

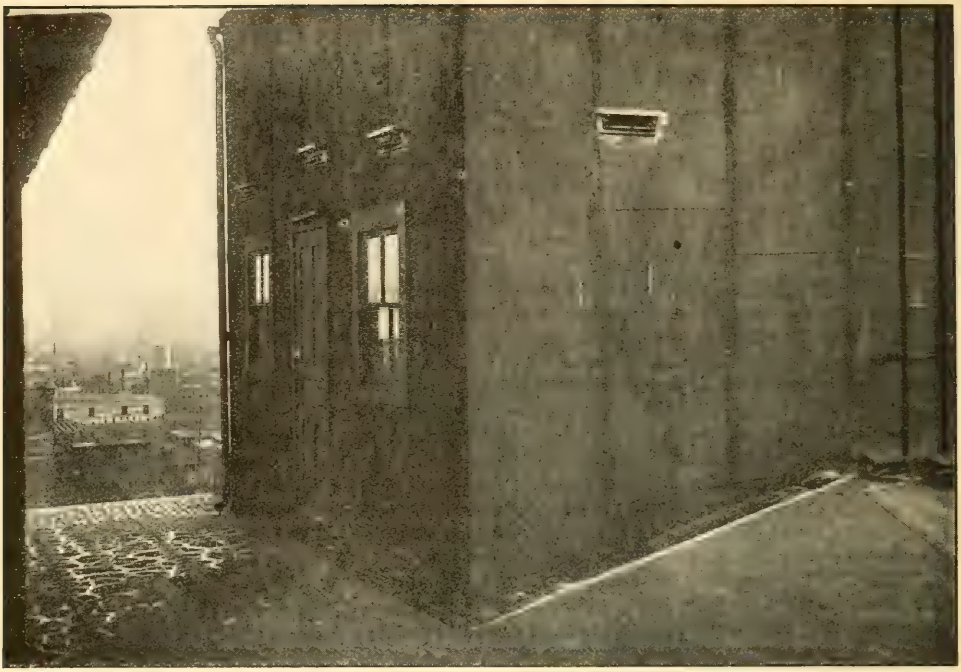


Lee Essenhower's bees on the roof of a department-store building in Reading, Pa. A large tank of water keeps the temperature nearly constant.

Swarming must be carefully guarded against. Eternal vigilance and clipped queens are the price of peace in a crowded city.

In the very few cases of stinging in the neighborhood during three years, investigation showed that the bees were invariably only on the defensive. A child returning from school in the afternoon perceives a "golden fly" resting on the window-sill, or perchance perched on an iron paling industriously cleaning itself. Only a few minutes before, the teacher has inoculated the child with the "swat-the-fly" theory, and the child now bubbles over with suppressed excitement as happy fortune places before her an opportunity to reduce theory to practice. With hand poised for a blow, little does the victim (I refer to the child) anticipate with what swift retribution her ignorance of entomology will be rewarded.

There is much to be derived from bees be-



A "house apiary" on a roof 100 feet above the street. The colonies are located inside a tank house.

sides honey or stings. What a wholesome relaxation we experience from the every-day sordid cares of the narrow cramped world when we delve into the mysteries of the hive! A mere lifting of the cover of a hive, and we are transported into an enchanted city where our woes and cares are forbidden to enter. We wander through the fascinating streets, we draw into our nostrils the fragrance of perfumed treasures, we gaze into golden enchanted palaces; and when we at length reluctantly depart, and the cover is replaced, we feel better, happier, and (may we say it?) purer for our little journey into the charmed city.

Beekeeping with Italian bees in a double-walled chaff hive is the nearest approach to a non-worrying, joy-giving, business-relaxing hobby I can think of for a city man.

New York City.

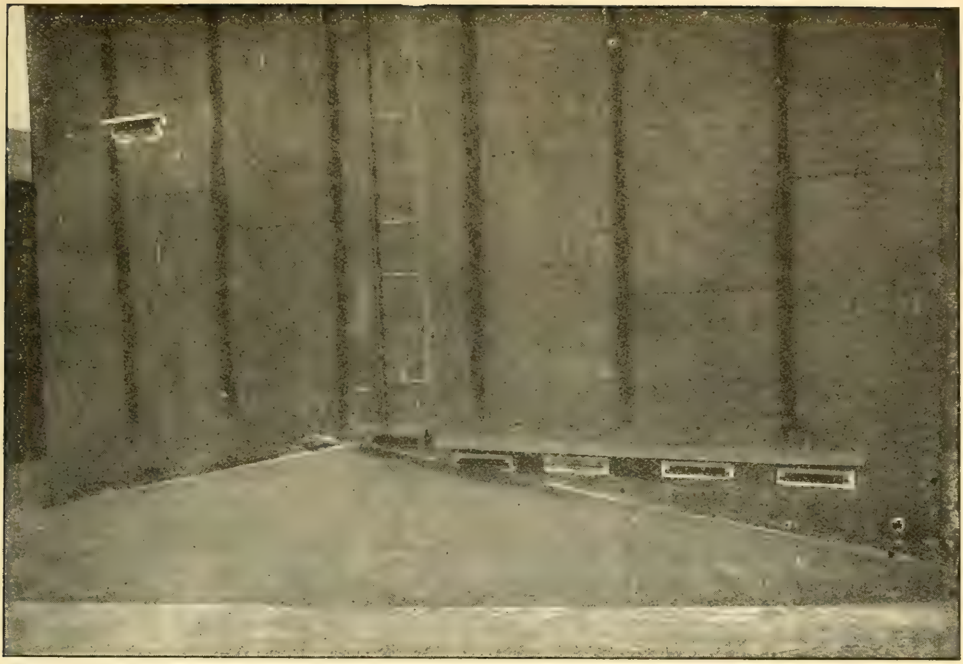
AN AVERAGE OF 60 POUNDS PER COLONY, 100 FEET ABOVE THE SIDEWALK

BY LEE ESSENHOWER

My bees are practically 100 feet from the sidewalk, on the roof of C. K. Whitner's department-store building. On May 25, 1911, this building was destroyed by fire, and in 121 days was rebuilt. At this time the thought struck me that the roof would be a good place for bees, and they were put there as an experiment. Last summer I took 360 lbs. of honey from six colonies, and built up the others so that now there are eleven colonies.

The hives are in the lower tank house, or the house where the pressure-tank is kept. There are, in fact, two tanks in operation—one simply a gravity tank and the other a large iron tank 16 x 8 ft., under a pressure of compressed air of 80 lbs. pressure, holding 60,000 gallons of water, ready for any emergency. In this house the bees are kept. Strange to say, the water holds the temperature pretty even all the year round, and makes ideal winter quarters for the bees.

High winds, to some extent at least, decimate the colonies; but despite this fact we have all along secured good crops. The bees have about two miles to go before coming to any real pasture for surplus honey. Our pasture consists of melilotus mostly, though we have a great deal of linden along our



A view of the hive entrances on the other side of the tank house.

sidewalks; in fact, we have a good linden field. I wish to say in this connection that I was the main instigator in introducing the melilotus many years ago, when the country seemed to be in an uproar for fear that bee-keepers were introducing an obnoxious weed; but still I kept silent, and continued to spread the seeds. I have been more or less interested in bee culture since 1877.

Reading, Pa.

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A CITY MAN'S BEES PAY HIS TAXES

BY HARRIS T. KILLE

If any of the readers of Gleanings should ever have occasion to visit New Brunswick, N. J., and take a walk out on Jones Avenue, they would surely stop and take a second look when coming opposite the house owned by the subject of this sketch. It is as much different from the ordinary run of houses as a queen-bee is different from a drone; and if the reader should be so bold as to step upon the broad colonial porch and ring the door-bell he would find a man as different from the ordinary run of men as the house is different from the ordinary run of houses. Measured by linear or avoirdupois your host would not grade very high; but if you should apply to him the scale for the measurement of genius you would have to use more than your ordinary pocket-rule, and it would not make the result of your estimate any the less accurate if you shove the decimal point over three or four places to the right after you have made your most accurate calculations.

The name of this genius is Henry Mills. His business is that of stock jobber for railroads. But one might just as well call him a carpenter, blacksmith, mechanic, or what not. He's a veritable Jack of all trades; and if we call him by that name we can say that he lives in " the house that Jack built;" for he built that neat house (Fig. 1) all himself, at odd times, without interfering with his regular work. He made his own cement blocks—made every thing, in fact, except the doors and windows. He has not quite finished it, but he has been living in it for more than a year, and he started to build it only two years and a half ago. He showed me over the house; and the rooms that are finished and furnished are certainly beautiful.

In the back yard, not fifty feet from a

neighbor on one side, and almost bordering the street on the other side, are his bees. He has 19 colonies. He made all his frames and hives himself. His hives are built much on the principle of the Danzenbaker, but have frames one inch deeper. "The bees," said he, "winter much better on these than they do on the standard Danzenbaker size, which is entirely too shallow for good wintering unless two stories are used. However, if I were starting in again," he continued, "I would use nothing but the standard ten-frame L. hive. Then if I wanted to sell out at any time I could get somewhere near the original cost of the hives."

To the question, whether his bees sting the neighbors, Mr. Mills replied, "I have never had any trouble from their stinging the neighbors, for I manage so as to do no work among them when they are gathering no honey, or when manipulation would be apt to enrage them. I have had, however, some trouble in the spring, because we invariably have warm days when the bees take their cleansing flights, even on Monday, wash-day. The neighbors at first thought that the spots on their clothes were caused by sparrows; but my mother told them that the bees were responsible, and ever since then I have had more or less trouble." Moral.—See that your truth-loving mother does not tell all she knows.

A product of Mr. Mills' genius, with which he seemed better pleased than he did with his make of hives, was a honey-extractor. He had made it practically himself, although he had to have a little assistance from a local blacksmith in making the gearing. For the tank he used an ash-can which, by reason of corrugated strips extending from the rim to the bottom at regular intervals about the outside, has much greater stability than many factory-made extractors. The revolving framework inside was built for service. It was made of iron straps 1 inch wide by ¼ thick. The photo, Fig. 2, shows the construction of the inside framework and comb-baskets. The gearing was also built for hard usage. If our manufacturers could combine the strength of this built-for-service extractor with the lightness, reversibility, and ease of running features of their extractors, we beekeepers would not have to deduct from 10 to 20 per cent for deterioration every year from our net earnings.

Fig. 1.—Home of Henry Mills, New Brunswick, N. J.

Although we do not have very severe winters here in New Jersey, Mr. Mills believes in giving his bees protection. As will be seen from Fig. 3, Mr. Mills' bees are located on a knoll overlooking the town. They receive the full force of the cold northwest winds which sweep over the town, so that it is only by packing his bees well that he is able to winter them successfully. He uses an outside winter-case made of unplaned half-inch lumber. This is so constructed that, when set down over the hives, it leaves an inch space all around the outside and extends two inches above the top of the hive. It is prevented from obstructing the entrance by the extension of the cleats on the bottom-board on which the hive-body rests. To the lower inside front edge of the case an inch strip is nailed the full length of the case. This prevents the sawdust and planer shavings (which he packs in the space between the hive and case) from obstructing the entrance. Around the lower edge of the other sides he wedges a layer of coarse shavings, on top of which he pours sawdust until the space is completely filled. Mr. Mills always leaves his excluders on

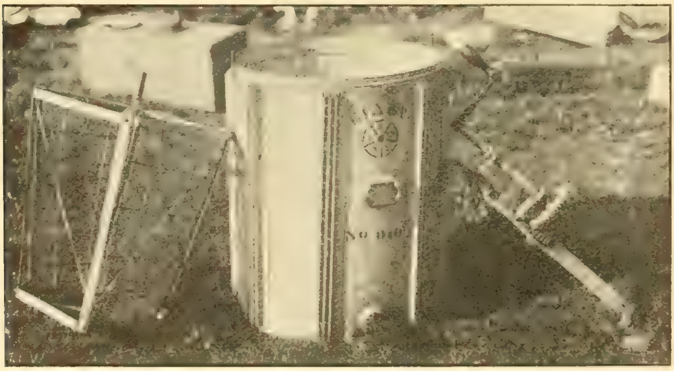

Fig. 2.—Henry Mills' home-made honey-extractor.

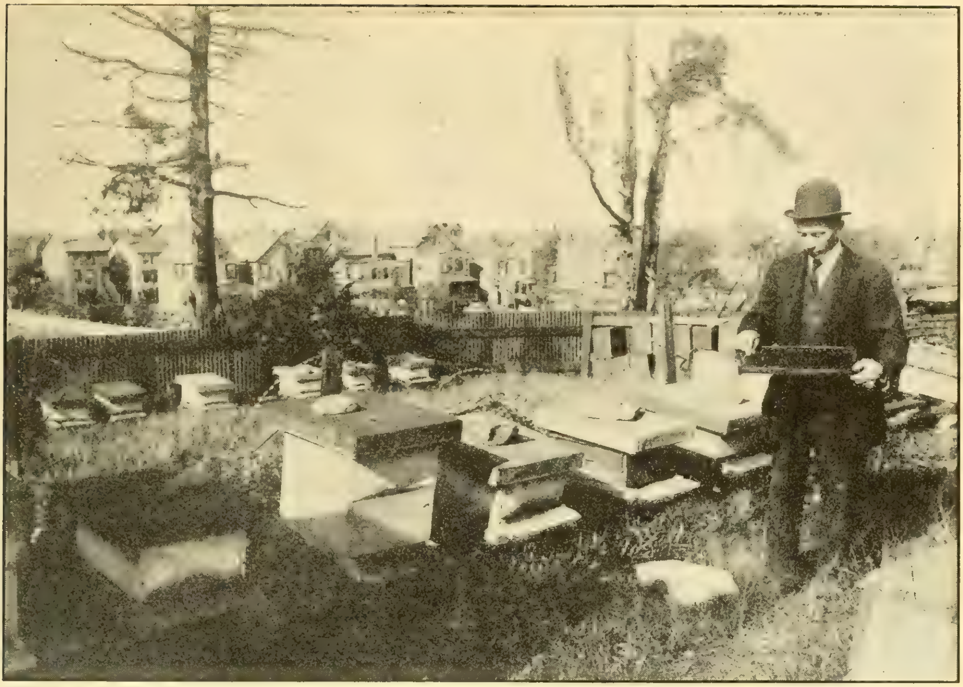

FIG. 3.—Mr. Mills' apiary on a knoll overlooking the town of New Brunswick, N. J.

top of the hives so as to give the bees space in which to pass from frame to frame, up over the cluster where it is warm. Over the excluder he spreads a burlap bag or enamel cloth, and fills in the two-inch space above with sawdust and planer shavings. Mr. Mills thus has the advantage of a double-walled hive for wintering, and at the same time has his light single-walled hives for summer manipulations. His winter case is shown in Fig. 4.

Whenever Mr. Mills has had colonies light in stores he has fed them successfully during the winter by placing a slab of hard uncrystallized sugar candy a space above the brood-frames, and covering the same with burlap and sawdust to retain the heat of the cluster.

To the question as to how much his bees paid him, Mr. Mills replied, "It varies with the season. Some years the bees do surprisingly well, while other years they don't store much surplus. I don't have a very good location here, for the bees get practically nothing from clover. However, I can usually count on a fall flow of dark honey. This dark honey sells here among my neighbors just as well as the best clover honey—in fact, better; for

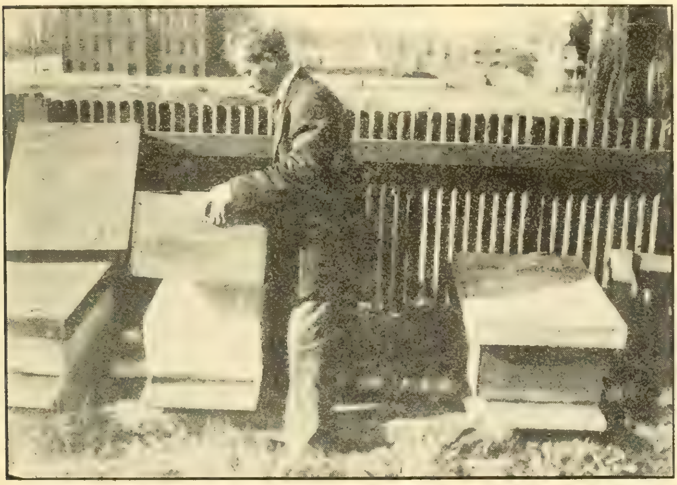

FIG. 4.—Winter case for holding packing material around regular single-walled hives.

one year I had enough clover honey to sell, and the customers came back stating that they wanted some of that black thick honey such as I sold them last year. But, even though I have not as good a location as some," he continued, "I manage to get enough from the bees to pay my taxes. My taxes amount to over $40. I always lay my honey money aside for that purpose. Every year I have enough to pay my taxes, and some years I have considerable left over." Not so bad, I thought, for a city man who keeps bees for the fun and recreation he gets out of the business rather than for the financial gain.

New Brunswick, N. J.

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OVER TWO TONS OF HONEY A YEAR FROM A CITY APIARY

BY GEORGE ZAUTNER

[Another picture of our correspondent's apiary appeared on the cover of our Oct. 1st issue.—ED.]

I have been interested in beekeeping ever since I was a little boy, though we have always lived in the city. My father bought his first hive of bees about 42 years ago. When he built his home it was on the outskirts; but now the city has grown so large that it extends a mile or more beyond us. I always helped father when he was working with the bees, and I became very much interested in them. The first comb honey we produced was in a square box that held about five or six pounds of honey, with glass on two sides. In those days we were satisfied if we got two or three such boxes from each hive. Now all is different. The improvements in beekeeping are something wonderful. We now have the modern hives and all the necessary equipment for up-to-date beekeeping.

The honey season is very short in this section. It begins about June 15 and ends about July 20. We never get any surplus from fruit-bloom. The bees use for brood-rearing what they get from that source. We depend on clover for our crop. When the clover is gone, that ends the season. So you can see we have to get our bees in prime condition by June 15.

We have two large city parks quite near us, and I think we get most of our honey from that source.

We must give our bees the best of care in order to get them in condition for the honey-flow. In early May, when a queen has her hive well filled with brood and bees I open the hive, put her with a frame of brood in another hive, filling the rest of the space with drawn combs, and set it on top of the other hive without an excluder. In three or four weeks I have two hive-bodies filled with bees and brood.

About June 15 I take eight of the best frames of brood and the queen, and put them below with an excluder on top to keep the queen below. Then I put on the first super and set the other hive-body of brood on top. This makes the upper hive queenless, and the bees will start queen-cells every time. But in five or six days I open the upper hive and cut out every queen-cell. This operation will keep the bees from swarming for the present. When the first super is about half filled I put another one under the first one so as to give them plenty of room to work.

In about fifteen days from the time I put the first super on I take off the upper brood-nest and set it on a new stand. Most of the brood will have hatched by this time. I leave it on the new stand for a day or two, when all the field bees will have flown back to the old hive. A splendid way to make increase is to give this hive a young queen. Or it may be set on top of another hive that is run for extracted honey.

In order to produce fancy section honey one must have his hives overflowing with bees. All our queens' wings are clipped. If a swarm comes out the queen will drop in front of the hive in the grass (I keep the grass short to prevent the queen from getting lost). I cage her in a wire cage made for that purpose, remove the hive to the rear, and put an empty one in its place. Then I place the queen in the cage on the alighting-board of the empty hive. When the bees in the air discover their queen is not with them they come back, looking for her. When sufficient bees come back to protect her I release the queen, when she will run in the hive, and all the bees follow her. Toward evening I open the hive that the swarm issued from, and cut out all queen-cells. I then set the swarm to one side and put the hive that the swarm issued from on its old stand, shaking the swarm back in front of the hive that it came from—bees, queen, and all. After this I add another super to give them more room. This operation of cutting out the queen-cells and shaking the swarm back takes only about ten or fifteen minutes. The next morning, before the bees begin to fly, I set the hive on a new

Home and apiary of Geo. Zautner, Albany, N. Y. Though located right in the city, the bees practically paid for the house shown.

stand in a different part of the yard. This seems to satisfy them.

We have no trouble with our bees stinging the neighbors. When bees are cross, and are inclined to sting, I believe it is due to rough handling more than any thing else.

Our average crop of honey is about 4200 lbs., and the average number of hives 65. I find ready sale for all the honey we can produce. We never have enough to supply the demand.

Beekeeping is only a side issue with me. I work in the shop every day, and take care of my bees in my spare time. I also have quite a large garden. We raise all our own vegetables and all the fruit we can make use of and to spare.

Beekeeping goes a long way toward reducing the cost of living. The home shown in the picture has practically been paid for with the proceeds from my bees.

Albany, N. Y.

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HOW I BECAME AN OUTLAW

BY THE OUTLAW

This is *sub rosa,* you understand—just between you and me. The fact is, I am a beekeeper. As being a beekeeper is not a crime *per se,* I shall have to explain further that there is a certain city ordinance in force here to the effect that no bees are to be kept within the bounds of the city. The ordinance is, in effect, as follows:

> Be it ordained by the common council that it is hereby declared to be unlawful for any person or persons to conduct or carry on the business of raising or producing honey from bees or keep or maintain an apiary or any hive or hives of bees, within any portion of the city.
>
> That any person violating any provision of this ordinance shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished with a fine not to exceed $200, or by imprisonment in the city jail for not exceeding one hundred days, or by both such fine and imprisonment.

But I did not become a beekeeper and violator of the city ordinance with malice aforethought—no, nothing like that. I am just a victim of circumstances, merely doing that which has been decreed by fate.

It happened this way: One Sunday morning, about the first of June, I encountered a small after-swarm of bees in the act of settling on the branch of a pepper-tree in front of the house that constitutes my domicil. Under such circumstances what could I do but hive the swarm? It would certainly not be right to leave a swarm of bees hanging on the branch of a tree, above the sidewalk of one of the principal streets of the city. The hiving was easily done with the aid of a borrowed clothes-pole, and on the end of this pole was attached a small basket.

Just think of it! walking along the street with my mind busy on matters that would come up in the office on the morrow, and then, ten minutes later, walking along the same street with a swarm of bees in a basket! The basket of bees was duly hung on the clothes-line, while I proceeded to alter into a hive a certain box which the grocer had delivered with groceries the evening before.

The alterations of the box sufficient for the time being took about ten minutes. The bees were then dumped into the hive, and the next moment I found myself the owner of a colony of bees, and also the violator of a certain city ordinance, and subject to a fine or a jail sentence, or both.

But before taking up with you my experience as an outlaw it might be well to lay the foundation for my acts. But remember I am telling you this biographical junk so that you will be in the proper frame of mind to understand and follow me through my acts as a practical outlaw beekeeper, working under an adverse city ordinance. That is my honest reason. Of course, if you in your own narrow-minded way think it mere *ego* on my part—why, I will not quarrel with you—just let you retain your opinion, and risk your calling up the chief of police.

To commence at the beginning, early environment forged the first link by reason of my father being an apiarist on a city lot. Stings were part of my early education. Then the wanderlust claimed me, with the result that one bright summer day, following the termination of the American occupancy of Cuba, I stepped ashore at Havana, and there among that band of pioneer beekeepers who followed the army of intervention I met the greatest of them all, the "Rambler."* Rambler was one of nature's aristocracy. He was a man who cared little for money and less for dress. He always associated the idea of a new suit of clothing with a ten-dollar bill. But as a man he stood the acid test. He was one who saw through every sham of life; smiled quietly at the various subterfuges and artifices which he encountered in others and ever remained as a nugget of pure gold among the pebbles. By reason of his rambles and observations, coupled with an inventive turn of mind, the result was that his brain had become a storehouse of those little matters generally spoken of as kinks. And while he had for years freely given his ideas to the beekeeping world through GLEANINGS, yet when he breathed his last there in the lee of Principe Hill, apiculture lost a thousand thoughts that were on record only in Rambler's brain.

Then there were the months I spent in the locality of where was situated the first apiary of bees in frame hives located on the island. I wonder how many of those who read this have been on the spot. How many, like myself, have cut their names in the trunk of that old royal palm-tree just above the well? For several years I led an ambulatory existence, to and from, over and around, the island of Cuba, at that time the greatest bee country in the world.

So, now, having turned for your inspection the foregoing page of the past, I trust that all those who are true apiarists at heart will understand and forgive my acts as an outlaw.

In answer to those who raise the question as to why I did not remove my colony of bees outside the jurisdiction of the ordinance, I will say that on one side of the city is the ocean and on the other is the desert; that the past season has been one when the desert flora refused to yield honey, with the result that, during all the time when I have had my colony of bees, the apiarists outside the city have had to practice feeding in order to keep their bees alive. Here in the city, matters are different. There is an abundance of pepper-trees and eucalyptus along the streets of the residence district, and in the public parks are thousands of eucalyptus of every variety besides thousands of other trees and shrubs. So here there is a continuous flow of honey, somewhat similar to the summer in western Cuba. The result has been that my little swarm of bees, without foundation, not even for starters, has been able to build on an average one frame each week.

Perhaps the question may arise in the minds of some as to the legality of the city ordinance under which I am an outlaw. To such I will state that it is my own personal opinion that the ordinance is valid; that the courts would sustain it under what is known

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* J. H. Martin, who was one of our most valued correspondents about 15 years ago.—ED.

H. C. Young's apiary in the country, 15 miles from Buffalo.

in law as the police power. As most beekeepers are not lawyers, I will say that what is known in law as the police power is the internal regulations of a State that have in view the preservation of good order, good health, good manners and morals, and the general health of the public. Chief Justice Shaw, of the Supreme Court of the United States, in the slaughter-house cases, stated " That upon it depends the security of social order, the life and health of the citizens, the comfort of the existence in a thickly populated community, the enjoyment of private and social life, and the beneficial use of property. Police power, as defined by Blackstone, is ' the due regulation of domestic order of the kingdom, whereby the inhabitants of a state, like members of a well-governed family, are bound to conform their general behavior to the rule of propriety, good neighborhood, and good manners, and to be decent, industrious, and inoffensive in their respective stations; that by the general police power of a state, persons and property are subject to all kinds of restraint and burdens in order to secure the general comfort, health, and prosperity of the state.' "

The courts of the various States and of the United States have continually sustained and upheld legislation that was enacted for the public welfare, health, or comfort, even though such legislation worked injury or inconvenience to innocent parties, even though it violated some organic law, holding that such legislation was valid under the police power of the State. For example, the constitution of the United States provides that full faith and credit shall be given by the various States to the laws of the sister States. Very well; in Illinois is a statute that provides conditions under which a person can practice medicine. A doctor, after complying with the laws of Illinois, in going to California, for instance, will there find that California pays no attention to the law regulating physicians to practice, and requires that an examination be taken; and, believe me, it *is* some examination—in fact, such that very few physicians care to take it. But the California courts hold that such legislation, even though it is prohibitive, as in effect it prohibits the Chicago doctor from practicing medicine in Dogtown, is valid under the police power, as it tends to protect the general public from inefficient doctors.

So, under the circumstances, I have no defense to offer, as I do not think a valid defense exists. I am just like any other educated lawbreaker. Being fully aware of the position occupied in society, I take every precaution to avoid being caught in the toils of the law that is being willfully broken.

To be continued.

OVER 200 POUNDS OF SURPLUS HONEY PRODUCED BY ONE COLONY ON A VERANDA IN THE CITY OF BUFFALO

BY H. C. YOUNG

Having had no experience in keeping bees—in fact, never having had a good look at a bee, I started to read GLEANINGS in October, 1911, and studied the A B C and X Y Z of Bee Culture. The following spring, in May, I received my beginner's outfit, consisting of one hive of bees, extra hive, etc.

As I live on a corner of a prominent business street in Buffalo, I decided to keep my bees on the veranda on the second floor of my home, which is very close to the sidewalk. Hundreds of people pass daily, and thousands of bees fly overhead.

Without the aid of an experienced beeman or any one else, I would open the hive three or four times a week or oftener, without the use of a smoker, veil, or gloves, and pull out frame after frame. I had no difficulty in picking out the queen, drones, and workers; also the drone and worker cells, and later I discovered the queen-cells.

About 11:30 A. M. on the 4th of July my bees swarmed, clustering on a poplar-tree about 25 feet from the hive, and they remained there until about 2 P. M. With the aid of my three brothers we set out to hive the swarm. Imagine the crowd of curious city people attracted by this undertaking. Our first thought was to cut down the branch with the cluster and place it before the empty hive. Not thinking about the weight of the bees, we began sawing, and soon there was an unexpected cracking noise, and the branch snapped off, throwing the cluster of bees to the pavement, about twenty feet below. In a few seconds the air, like a blinding snowstorm, was filled with live bees. The terror-stricken people scattered, and ran in all directions for shelter. In order to convince them that there was no danger I hurried to the street with head and arms bare, scooped up the bees in my hand, and shook them into the hive without receiving a sting. Soon the frightened ones regained their nerve and returned to satisfy their curiosity.

About a week later I found a new queen in the old hive, which evidently became mated with a black drone. I soon noticed the difference in the disposition of her bees, as photo No. 1 will show. The old queen and her bees in the swarm have maintained their very mild disposition to the present day.

The following spring, May, 1913, I purchased five more colonies. I kept one colony in the city and sent all the rest to the country, about fifteen miles away. Starting that year with seven colonies, and with the capture of one stray swarm in the city, I increased my apiary to fifteen colonies during the summer, and secured about 500 lbs. of honey.

From my limited observation I am led to believe that a few colonies do better in the city than in the country. During a drouth bees find little or no nectar in the plants of the meadow or mead; while the warmer, the drier, and the more arid the weather, the more the city folks sprinkle their gardens and lawns, thus keeping the honey-flow normal. I noticed during last summer, while we had a long drouth, the bees in the country were not gathering any honey, while those in the city during the same dry weather were busy working filling up cells day

H. C. Young, of Buffalo, N. Y., showing the result of his first experience with hybrid bees.

after day. This one colony in the city produced a surplus of over 200 lbs., which was nearly half of my entire crop.

I desire to impress upon your readers that, far beyond the profits arising out of my short experience in bee culture, I have had pleasure of the highest order. The bee is one of God's most remarkable creatures, and a study of it has enlightened me as to his vast wisdom, and will, I trust, make me a better if not a greater man.

Buffalo, N. Y.

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A HOUSE APIARY FOR CITY BEEKEEPERS

BY C. S. NEWSOM

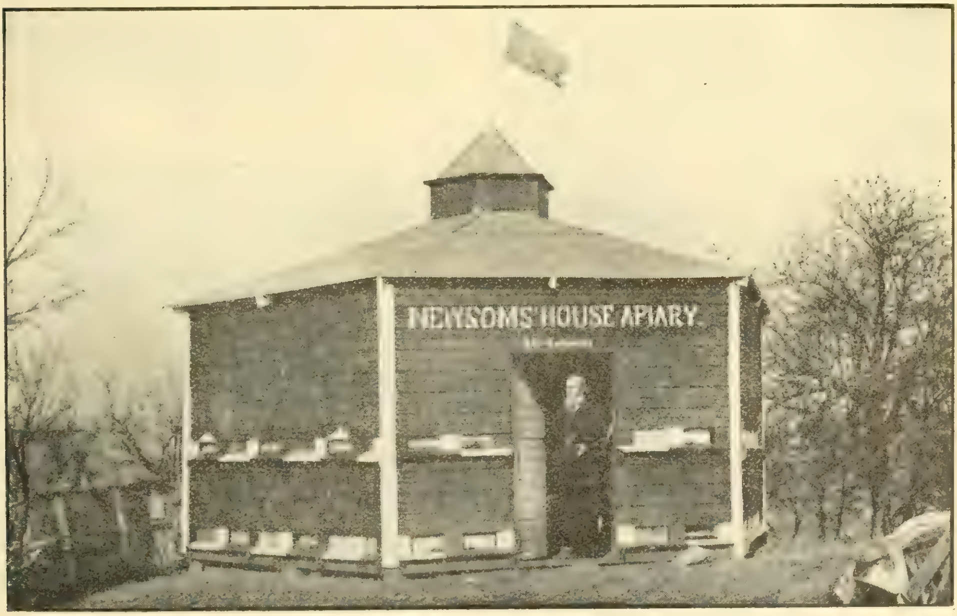
The photograph shows my house apiary, every one of the sixty colonies which it contains being within 4 feet of my work-bench in the center. When the picture was taken I neglected to open the doors in each side. After building the house I sawed out large openings and put hinges to the doors which swing upward. The doors are held up by a two-foot stick with a screw-eye in the end, engaging with another one in the door. All these openings make considerable light; and any bees inside soon disappear through them. The cupola is also arranged for large openings for still more light if needed.

When my bees hang out in front of the hive as they did in the sweltering sun last season, I propose scooping them into hives of comb foundation with a frame of brood added, and a queen; and those scooped will be darkened in the house a day or so; then the hive will be set up on the frame for my new swarms. Then I shall have a new swarm, and the old hive not molested nor even disturbed, and the work will go right on. The bees that cluster on the outside of the hive are mostly young ones hardly able to fly, and they can just as well have more room and a chance to do something. I think the plan will retard swarming. Hereafter at the close of the season I do not expect to have a great lot of unfinished and uncapped sections. The bees can work at night in the warm room. Breeding will also begin earlier in the spring, and will keep up later in the fall, insuring strong colonies.

The wall of the building around each entrance is painted a different color to enable the queen or the bees to return to the right entrance.

Athens, Ohio.

[While house apiaries are used considerably in Germany and other parts of Europe, especially where outdoor room is scarce, they have been abandoned largely in this country, chiefly on account of the expense.



C. S. Newsom's house apiary located in the city of Athens, Ohio.

There is no other great objection, provided there are suitable openings in the side which will give sufficient light for finding queens, say, and for permitting any bees that have the combs, when they are being looked over, to get outdoors at once.

In our opinion, scooping up bees that cluster outside because of the heat or overcrowded condition of the hive, and forming a new colony with them, would give rather uncertain results. We think it would be much better to make the increase in some other way, for the cluster outside may be composed of field bees largely.—Ed.]

A DRUGGIST'S EXPERIENCE WITH BEES IN INDIANAPOLIS

BY H. D. HOPKINS

I am one of the many who have the bee fever, and I have had it for about 18 years. I keep my bees in the central part of the city in a thickly settled district within half a block of a schoolhouse. Occasionally I loan the teachers my observation hive to teach the children the habits and industry of the bee.

I always winter about five colonies on their summer stands well covered with leaves, and protected by a shed. I have never had a winter loss.

H. D. Hopkins' ornamental hive for a city lot.

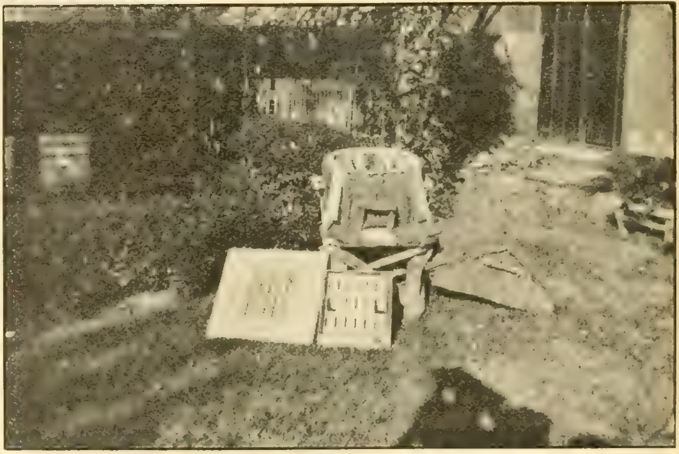
I am a druggist, and have little time to look after the bees; but I enjoy keeping them for the recreation. I have a neighbor three doors below whom they bother a little by making use of her well-spout for a drinking-fountain. They have to pump out the bees before they get water. I make my peace with them when I take off the honey.

The bees also object to the lawn-mower next door, and sting the man or lady behind it, so that requires more honey to keep peace with my neighbors.

Last year I sold the increase, which was six colonies. I took off 120 lbs. of No. 1 white-clover honey. I have no trouble in disposing of it among my neighbors at 20 cts. I should like to keep more bees; but there is not enough pasturage in the city for them. I have tried chickens and pigeons; but for real pleasure, profit, and little work, give me bees.

AN OLD-FASHIONED BEE-GUM REMODELED.

While visiting my brother's apiary this summer in Putnam County I found an old abandoned bee-gum. I requested him to send it to me, for I thought it would be a curiosity. After it reached me I decided to modernize it, so I made six brood-frames to fit and hang on tin brackets. I cut down an eight-frame super to hold three of the D section cases. The frames and sections can be removed and replaced at any time. I covered the log with bark and gave it a roof of bark, so I think I have quite an ornamental as well as a useful hive. It stands

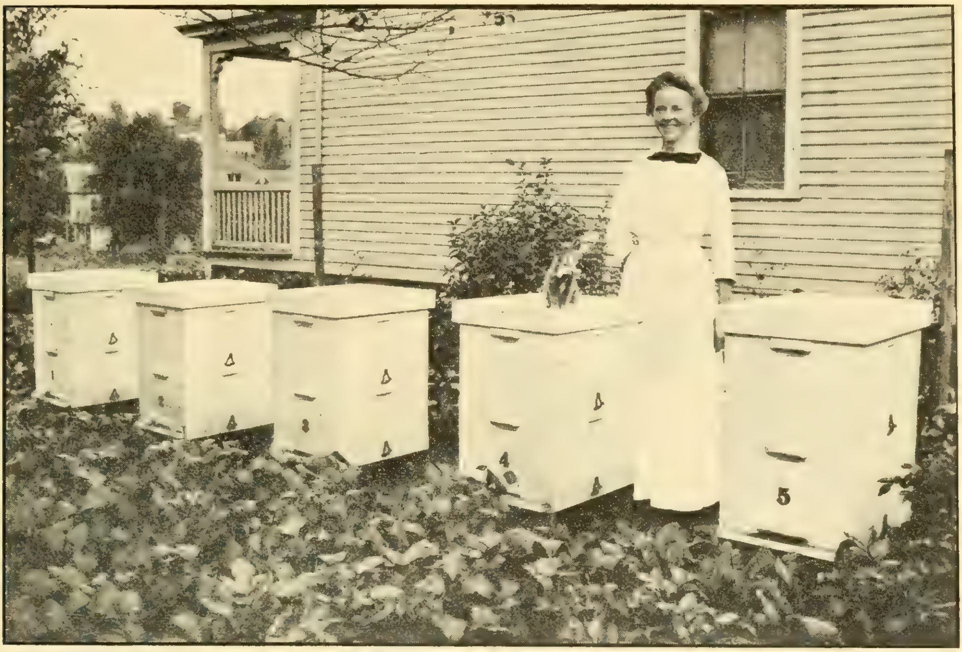


Cover and super removed, showing the combs in the brood-chamber.

4 feet high, and has an 18-inch brood-chamber 12 inches wide in the center.

Indianapolis, Ind.

[It is true that bees kept in a city are sometimes troublesome about outdoor pumps or watering-troughs. This trouble may be partially prevented by providing water close by, for they must have it at times. Adding some salt to the water often helps, as the bees seem to prefer it for some reason. At times it is also very important to place artificial pollen where the bees can get it, to keep them away from nearby barns, etc.—Ed.]



F. A. Connor's jumbo hives in Worcester, Mass.

JUMBO-DEPTH HIVES FOR CITY BEEKEEPING

BY F. A. CONNOR

My small apiary of Carniolan bees is located in the suburbs of this city. I am a great advocate of jumbo hives. The picture shows my extracting hives. I might mention that these hives consist of two regular dovetailed jumbo bodies, Hoffman $11\frac{1}{4}$-inch-deep frames, metal-roofed covers, Danzenbaker bottoms. I have found, after an experience of about 20 years as a beekeeper, that this is the ideal hive for extracting, especially with Carniolans.

I am constantly meeting with severe criticism when I advocate this style of hive; but there are several important advantages in using this hive. One can adopt the jumbo hive and still keep on using the standard Langstroth ten-frame hives and supers. In my judgment it is of great importance to have a hive which standard supers and covers will fit, and one adapted to bottom-boards. The queen rarely goes out of the chamber she is in, as the brood-chamber is of sufficient capacity for the most prolific queens; hence queen-excluders are not necessary. As a non-swarmer, or practically so, when operated for extracted honey, I have found this hive the best I have ever used.

Possibly I have given too much praise to this hive; but let me say here that one should study his locality very carefully before deciding on what size of hive to adopt as his standard.

In this locality bees are unable to gather nectar for more than six months in the year, and colonies must necessarily be kept strong throughout the season.

Worcester, Mass.

BEEKEEPING FROM A CARTOONIST'S VIEW POINT

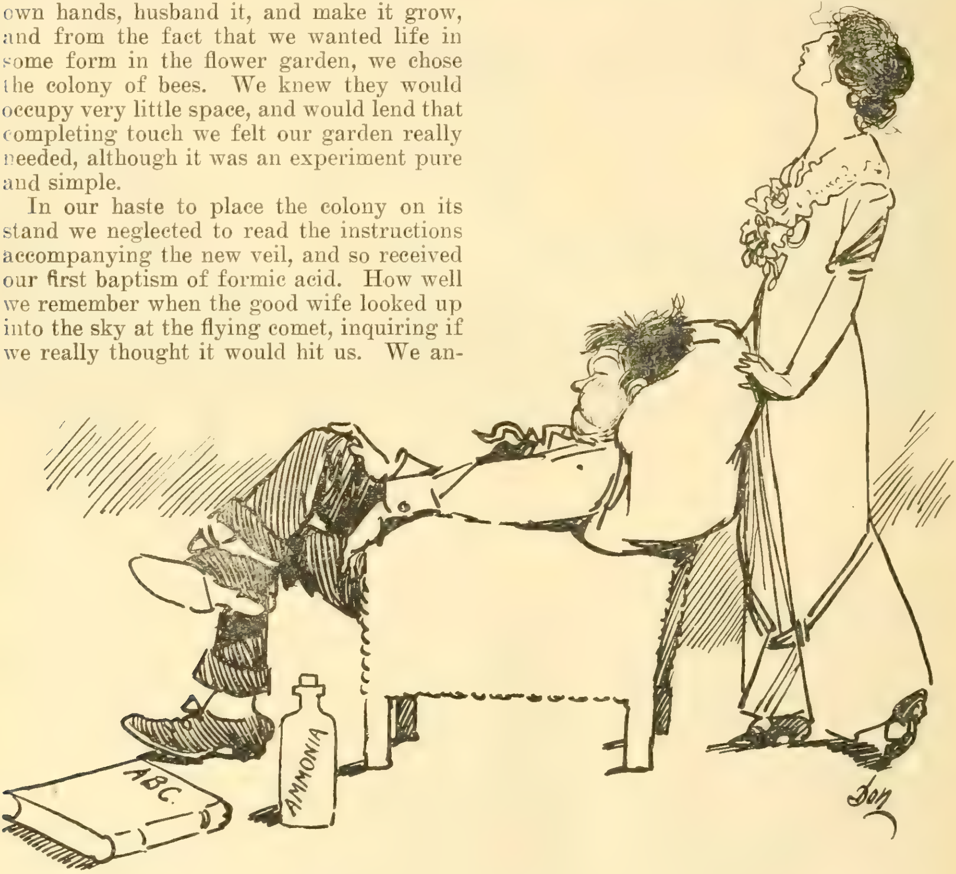
BY J. H. DONAHEY

[The writer of the following is the cartoonist of the Cleveland *Plain Dealer*, who, as we mentioned editorially in our Dec. 1st issue, is an enthusiastic beekeeper. Mr. Donahey is in Egypt at present; but when he returns he is going to furnish GLEANINGS some cartoons depicting the joys and sorrows of the beekeeper. A more extended notice of these will appear later.—ED.]

Three years ago, on the evening that Halley's comet was supposed to strike the earth and demolish us, our first colony of bees arrived. They were hybrids, very cross, and in a single-walled eight-frame hive. We had never kept bees before, and knew practically nothing about their care beyond a faint memory of the old-fashioned box hive that used to stand under the apple-tree in the country village.

With a desire to do something with our own hands, husband it, and make it grow, and from the fact that we wanted life in some form in the flower garden, we chose the colony of bees. We knew they would occupy very little space, and would lend that completing touch we felt our garden really needed, although it was an experiment pure and simple.

In our haste to place the colony on its stand we neglected to read the instructions accompanying the new veil, and so received our first baptism of formic acid. How well we remember when the good wife looked up into the sky at the flying comet, inquiring if we really thought it would hit us. We answered that we did not care one whit whether it did or not.



We did not care one whit whether it did or not.

We have had many enjoyable experiences, and have had to hasten to our volume of the A B C and X Y Z of Bee Culture very often; but with it all we have found a pleasure far greater than we had ever hoped or dreamed.

The next year, during our absence, a colony concluded to swarm. Mrs. Donahey, who had never handled bees, tried a new trick, and one we had never heard of before. Knowing we could not get home in time to hive them, she secured the lawn hose lying near, and, turning on the water, directed the stream on the bees as they were pouring out of the entrance. She explained later that she had read somewhere that bees do not swarm when it rains, and she concluded to try a summer shower on them. They went back into their hive that day, but they did it all over the next morning, but we were there to put them right into their new home. Our first hive, after being requeened with an Italian, has grown to fourteen, and last season we took off one thousand pounds of very fine comb honey, and the clover secretion was as white as any we have ever seen produced in the country.

The bees are kept in the double-walled Buckeye hive, and are wintered out of doors. They are on the side of a hill that is covered with some timber overlooking a stream, facing the southeast, and in the rear of our home. The little workers come and go all day long without our neighbors ever knowing they are there, unless we by chance present them with a toothsome bit of honey, or invite them over to inspect the busy homes.

To the city man or woman who loves nature, and who has but a small back yard, the bee offers many advantages over any other form of outdoor amusement or recreation for profit. We know of no occupation better adapted as a diversion to any one who deals in the abstract. The little bits of wisdom picked up from the insect world, the messages they bring as their tired little wings carry them in from the fields laden with honey, the lessons they teach us in their patience and perseverance, all tend to create a stronger feeling and a better love for our fellow-man, to say nothing of the dividends received in golden nectar.

We have learned many things from the bees, and look forward to the time when we shall understand them better; for we long ago gave up hope of ever getting them to understand us. But the knowledge we have already acquired is far greater than we expected to attain in one small back lot in the city.

Cleveland, Ohio.

BEEKEEPING A SIDE LINE AND FOR THE FUN OF THE THING

Read before the Second Annual Convention of the Iowa Beekeepers' Association at Des Moines, Iowa, December 11, 1913, by Hamlin B. Miller, Marshalltown, Iowa.[*]

My subject to-day is of such a nature, and my beekeeping experience of so short a duration, that I must confine myself to personal experiences more or less, in order to make my remarks of sufficient length and interest. I don't presume in this effort to teach you old-time beekeepers any thing. I am just going to be satisfied if I can only entertain you a little, and perhaps take you back to your beekeeping youth.

It tickles me every time I think of the funny things I have read in Dr. Miller's "Fifty Years Among the Bees." I am not related to Dr. Miller, the pioneer beeman, that I know of; but I have experienced some of his early and peculiar symptoms of bee troubles in my own bee-work infancy. I often congratulate myself upon the fortunate escapes I several times have already made, and fully appreciate the many hints and experiences that others have given in the bee-journals that have helped me to avoid many pitfalls and needless humiliations that I otherwise would have fallen heir to in spite of my already fast accumulating experiences in bee culture or "bee smartness." Right here I do not wish to forget to mention that I owe the greater part of my bee knowledge to the bright, up-to-date, and resourceful bee-journals.

After I really started, I was going some. I couldn't stop long enough to eat my meals. My physician had ordered me to go on a diet. I even overworked that. I fasted. I didn't eat at all, seemingly, and soon lost thirty-five pounds of flesh with my fasting and "bee fever." But then, it did me good —have regained part of my flesh, but have never been able to break the fever.

Now, every man has (or at least should have) a hobby. Some think a hobby means chasing a golf-ball for hours over a forty-acre field. Others think it is to travel on foot twenty miles or more over the roughest localities, carrying a heavy gun and ammunition, just to get a chance to see a flock of ducks too far away even to hear a gun.

My physician having ordered me to stay out of the printing-office, adding that I must rest from the nervous strain I was carrying, I immediately landed on my neglected lawn with a lawn-mower, a rake, and a spade. It was fun—never had really enjoyed it before, because I did not know I possessed another talent besides the acquired printing-office habit. Then my wife also landed on me for flower-beds and various other yard improvements. It just seemed as though she would sidetrack my hobby for hers, she was so industrious about it; but I was too far gone to lose out on the bees.

While all these new-found pleasures were becoming settled upon me, a new neighbor in the meantime had moved in next to me, and he had two colonies of bees. I was just a little bit leary of the pesky things, for the sight of a bee had always affected me just the same as it does the majority of mankind. I was never unprepared to make my get-away.

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[*] On account of our lack of space in this special number we have not been able to use quite all of the paper.—ED.

It wasn't long before my neighbor was making an awful smudge and monkeying with those bees. By tip-toeing around and peeking over, I saw it all. Standing on somewhat higher ground I was astonished as I beheld him actually putting his hands down in that hive, *right among those bees.* The cold chills ran relay races up and down my nervous body as I watched him lift out the frames covered with the yellow-banded fellows and dozens of them running over his hands. "Hello! George! What are you doing?" I asked, in as calm and possessed a manner as I could muster up. Without lifting his eyes he said, "I'm trying to see what these little fellows are doing."

His calm answer and the seemingly indifferent manner with which he turned those frames of comb and bees over and around, all the while critically examining them, captivated me, and *I was stung with the "bee fever."* May be you think it strange; but the fever has not yet abated.

Well, my confidence soon grew bolder, and I was finally near enough to peek over into the hive. *Wonderful! delightful! entrancing!*

But, horrors! He asked me to hold a frame for him while he did something or other that needed attention. My nervous chills immediately changed to "shiverinos." My teeth would have chattered themselves loose had I not set my jaws firmly together; and (would you believe it?) when some of those varmints ventured to run over my hands the water seemed to ooze off from me in a manner that would put a Turkish bath to shame. After it was all over I went home, weak as a cat, and lay down to ruminate, resuscitate, and recover, for I had experienced a drenching equal to any Turkish bath I have ever had administered to me.

I couldn't rest. I wanted some bees; and their not stinging me was one of the best reasons I should have them; and then, again, I had never before in all my life had enough honey to eat.

My neighbor was Mr. George Belt. I asked him to find me some bees. He did. We soon became fast friends, just because we had found true pleasure in the same hobby. My wife soon called me "nutty." George and I were both fatally afflicted with the malady. Many an hour we ruminated on the possibilities and the pleasures we had discovered in the yellow-banded friends, growing more "nutty" every day. Ever after we hailed each other as "George B." and "Hamlin B."

I soon secured three colonies, brought in from the country in home-made hives. Gee! but I was afraid of them just the same Setting them on boxes in the back yard I carefully pulled off one of the cleats that kept them in the hives, and ran away to a safe distance. They were so overjoyed at the fresh air I had let in that the whole yard seemed to be full of bees and their music, which I did not understand, as they played in and out of the hive. As soon as their enthusiasm had waned I stole up and liberated another hive. Now, "George B." did not see this or he would have laughed.

My wife also became interested at this juncture, and began handing out advice as to how I should conduct myself and manage the newly acquired backyard friends. Many have been the fool things we thought of and experienced during the past three years.

This was in the fall of the year, and I put those three stands in the cellar, and *shut the cellar up tight* from the air as well as light. Every time I went down cellar I hurried out again. My wife always made me go down for vegetables and canned fruit. I had to be bold, of course, but I was really afraid, just the same. The bees would come out and fly around. The floor was becoming thickly covered with them. I was awfully worried. I knew they would all be dead on the floor before spring. They got so noisy at times, and so bold, that I put off taking them out of doors until after the middle of the following April; and when I did grow bold enough to do so I had another case of chills; for while carrying out the second and third hives the other bees took especial delight in settling on me as the most likely object and place in the whole back yard to rest, and they actually turned my hat and clothes into a brown spring suit. It made me somewhat disgusted; but my wife wisely remarked, "You can't expect much else from bees." She knew all about it, of course. Well, there were less than one million bees in those three hives after all had died in the cellar that wanted to die there.

We harvested (or, rather, stole) sixteen pounds of bulk honey from one of these colonies that fall, but had to feed two colonies all winter. The other colony fell dead on the hive bottom three days before I put the others out the following spring—starved, of course. "Fool trick," my wife said. "I know it," was my response. I pined for thirty days—never felt more uncomfortable in all my life, for I really thought they had enough to live on until it was time to put them out.

Things began to go better. I had six strong colonies the next fall. Took out 150 nice sections of honey. I ate honey all winter and sold the rest at 25 cents a section.

I wintered the six colonies perfectly. I had a thermometer in the cellar, and kept the cellar windows open nearly all the time, but darkened the opening with a long heavy curtain. I discovered that every thing else also kept better in the cellar with the temperature around 45 degrees.

During the past summer I increased to eleven colonies. Lost two of my queens, and then consolidated three stands into one, leaving me nine. I'll tell you how it was. The colony that had up to this time made me 108 sections of fine honey did not swarm until the last day of June. I was lounging in the yard swing, watching half a bushel or so of the tenants hanging on the front of the hive, when all at once they came out of that hive like a cloud rose in the air, and left like a roaring tornado. I was mad. I never before had had nerve enough to clip a queen. My wife was excited also. More advice was given me as to how I could have prevented such a blunder. I got out my tools, jerked the supers off from that hive, and found the queen. I think now she was a virgin. Then I slipped the scissors under her wing and clipped her; also clipped the queen of another colony that had just swarmed. After it was all finished, I repented what I had done, as my book knowledge had then had time enough to soak through and leak out, and I realized what I probably had done. The next day I found one of those clipped queens balled on the front steps of the next-door hive. I sprinkled water on the ball. She emerged and ran into that hive before I had time to stop her. Something happened to that colony as it became queenless. So did the other hive where I had clipped the queen. I don't know about the colony with the runaway swarm. They kept on working. But I do not know yet whether it still has a queen. I presume I shall find out next spring—another fool notion, I suppose. I presume my wife will tell me about it at that time.

I harvested 247 nice sections of honey that year, much of it No. 1 fancy, and all selling at 25 cts. per cake. I weighed ten sections that I sold to one party for $2.50, and the scales showed ten pounds and four ounces—25 cts. per pound, you see, and the customer wanted more.

If there ever was a hobby to get a man's mind off from every thing else, *the bee is it.* They say fish and cabbage are foods for the brain. Well, I do believe the bees are the emergency brakes in cases of overwork and brain-fag. I have wasted thirty-five years of pleasure and fun, as well as profit and better health, by not having discovered the interesting and industrious bee as my friend.

There would not be so many broken-down business and professional men if they had taken time to become interested in a few colonies of bees. I also believe the outdoor treatment of bee culture, taken early in life by the average individual, would eliminate many cases of the white plague commonly called tuberculosis, not to mention other ailments that the outdoor life would benefit.

God made the bees for us. He has heralded the praises of honey in the book of holy writ. Man makes sugar and molasses by chemical processes. The bees make honey by the process provided by God himself, who never patented the process, and never has changed, nor invented a better way than he started the bee out with at the beginning, notwithstanding all the theories that Dr. Bonney and the many other wise and learned fellows are continually contending about in their endeavors to make over the bee and its habits.

Do you know I have learned to appreciate and love, more and more, God's outdoors since I got this bee trouble? I had never seen the sun rise since I was a little boy on the farm until the bees gave me the morning boost. I have got so I can't successfully night-hawk it any more, and neither can I lie in bed in the morning while the bees are out and at it. But I have never been able to get out so early but that I have seen them coming home as well as going out.

My health is better, I feel better, and really am better, because I have learned to love the bees.

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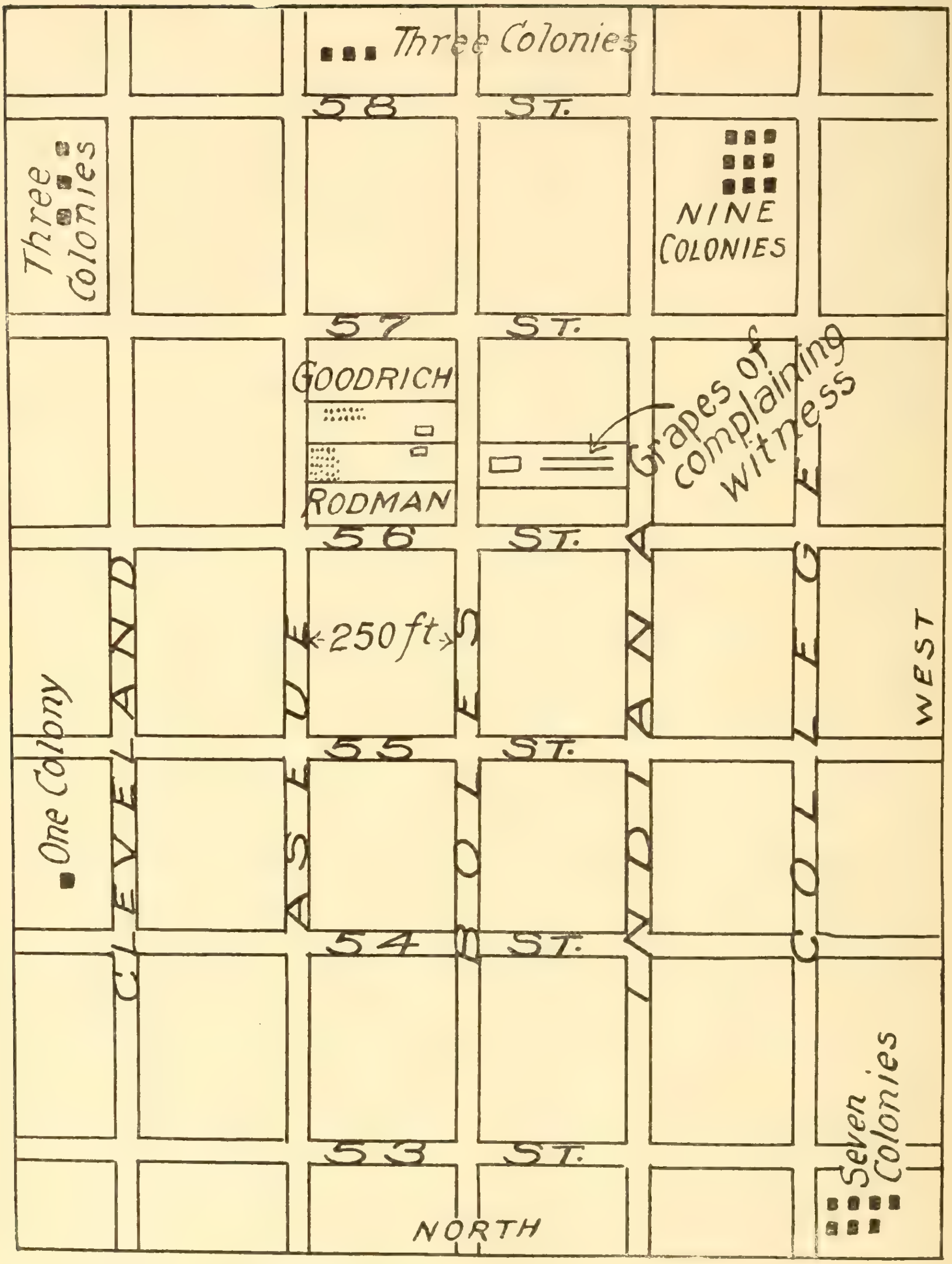
ARRESTED FOR KEEPING BEES

BY A. T. RODMAN

I have decided to tell my troubles to the readers of GLEANINGS. During the summer of 1912 my neighbors across the street informed us that our bees were destroying their grapes. The facts were that we had had a dry season just as the grapes were maturing, and then, just as the grapes ripened, a heavy rain. This caused a rush of sap into the grapes; and as the skins had been hardened by the dry weather they


Three Colonies
58 ST.
Three Colonies
NINE COLONIES
57 ST.
GOODRICH
RODMAN
Grapes of complaining witness
56 ST.
250 ft
CLEVELAND
EUCLID
ASHLAND
WEST
One Colony
55 ST.
BOLES
INDIANA
COLLEGE
54 ST.
53 ST.
Seven Colonies
NORTH

Map of the part of the city in which the trouble arose.

burst open. The results were that the bees commenced to hull them out. We explained to our neighbor the cause of the trouble, and told him to pick his grapes at once.

The season of 1913 was different. It was dryer than the season before, and there was a scarcity of insects for the birds. This caused them to turn to the ripening fruits for food. My neighbor again complained about the bees. I told him that, if he would keep the birds away from his fruit, the bees would not be there. You see I had been watching the birds feeding on his grapes before he was out of bed. However, he came over one Sunday to inform me that he was going to make a test case of it, and intended to swear out a warrant for me the next day. I tried to reason with him, and took him to see my grapes. I also read of several cases to him as published in the A B C and X Y Z of Bee Culture. I also told him that he would likely beat me in police court, but I would defeat him in the end in a higher court. Before he left he said he was going to leave it to somebody else to prove that bees damaged fruit, and that he was going to drop it. I thought the trouble settled, and invited him over again.

Contrary to his promise he went the next morning and swore out a warrant for my arrest. He also put out sweetened water and scalded the bees, and poured coal oil on them and killed them in every way possible. I notified the humane officer, and he put a stop to the slaughter at once. However, he swore on the stand that he had killed half a peck of bees. They also made a pretense of being afraid of the bees. This caused me to have some pictures taken to show that bees do not sting when in search of food unless squeezed in some way. My neighbor (if he can be called such) is a politician; and when he found out I had taken the pictures he said it would not make any difference—as much as to say he had the judged "fixed." The facts are that the judge is a friend of his.

In order to make his case good he went all over the neighborhood and found out all the children that had been stung by stepping on bees. He had their parents subpoened and brought into court as witnesses against me. His next-door neighbor, who had some hard feelings against me, swore that he could not sit on his front porch of evenings till bed time on account of the bees. Just think of it, brother beekeepers! what an industrious strain of bees I have. flying around at night and driving my neighbors in at a distance of 315 feet from my apiary!

Another stated that her children were afraid to pick the peaches on account of the bees. That same boy came to my house and looked through eleven colonies of bees while I was away. But when his mother wanted him to pick peaches he was afraid of being stung!

As the trial progressed, everybody thought that I was sure to be discharged. No one could swear that the bees the children stepped on were my bees—in fact, no one could say that the bees that were on the fruit were my bees. I also proved that my next-door neighbor had bees as well as many others; in fact, I had only about one-fourth of the bees in that district.

I also exhibited fruit that had been in the hive for 58 hours, and not a grape was damaged. After all the evidence had been introduced the judge rendered the following decision:

"There has been a great deal of expert testimony introduced that proves that bees do not injure fruit. On the other hand, there has been more convincing testimony that people have been stung by the bees. However, I want you to get a decision in a higher court, and I will find the defendant guilty, and place the amount of his fine at $100, which is the minimum amount." I was placed under arrest at once, and detained in the police station for a time. I gave a $200 bond, and was released. Strangers to me, when they heard the decision, left the courtroom in disgust. One man was heard to say, as he shook his fist, "Politics! politics! d—d politics!"

Then I got busy preparing for the higher court. There was no law prohibiting the keeping of bees in the city limits. I took several photos of other apiaries, some of which are shown on the map. I live on a plot of ground 125 x 250, and control two other plots of the same size adjoining me on the north. I had 22 colonies. I found one apiary of 100 colonies on a fifty-foot lot in a congested residence district. The picture will show how close the houses were on each side. Does it not look a little strange that I should be fined $100 for keeping 22 colonies on 2¼ acres while others could keep 100 on a 50-foot lot?

When the trial came up in the criminal court I was well prepared. Mr. J. F. Diemer, of Liberty, Mo., who is also secretary of the State Beekeepers' Association, was present and volunteered his assistance. Mr. Austin D. Wolfe, of Parkville, Mo., also was present as a witness with fruit to introduce as evidence. I had an observatory hive of one frame of bees with a lot of grapes inclosed, as well as a pear and a peach to show that the bees did not damage sound fruit. When my case was called, my lawyer did something that I did not altogether approve of, and without my knowledge. He produced the city ordinance that I was charged with violating, and showed that the city had not proceeded according to law against me, as I had not been notified as required by the ordinance; also that I had not violated the ordinances cited in the complaint.

After Judge Latshaw examined the law he promptly dismissed the case. Many of my friends who keep bees in the city were present, and what a hand-shaking time we had!

Of all the beekeepers in my neighborhood I am the only one who is really making any thing out of bees. The people never see any one else carrying away honey as I do. They also see me on the street cars with bundles of queens in mailing-cages; therefore they seem to forget that there are any other bees than mine; so if a bee gives anybody any trouble it's always mine, and I hear about it.

I use up-to-date methods in caring for my bees, to which I attribute my success. I have supplied my beekeeping neighbors with queens, so it was impossible to identify my bees.

Many of my neighbors were willing to testify for me, and some came and offered their services. I shall always feel very grateful to them for their assistance. While I should very much have preferred to settle the case on the strength of the testimony, it possibly was better to have it dismissed.

The man who had me arrested stated that he would have an ordinance passed prohibiting the keeping of bees in the city; but we have beat him to it, and the prosecuting attorney has stated that it would likely be unconstitutional.

I have also learned something. The next time any one threatens me with prosecution I will go and see the prosecuting attorney at once, talk the matter over with him in a reasonable way, and that will end the trouble. Any one who is likely to get into trouble should remember that attorneys are ignorant in regard to beekeeping, and are likely to issue a warrant through ignorance, and put one to a lot of trouble and expense in defending himself.

Kansas City, Mo.

HIGGINS VS. VAN WYE; A MAN WHOSE BEES GOT INTO COURT

BY W. A. H. GILSTRAP

The above action was called in the Superior Court of Stanislaus County, at Modesto, Cal., about 10:40 o'clock, Oct. 24, and was concluded after sunset the same day. The case was of special interest to the beekeepers of the county, and of passing interest to many others.

Mr. Higgins, in his complaint, said that Mr. Van Wye's bees were located near his home on the land of another person (Mr. Garver), and that they came to his pump and trough in great numbers, stinging his stock, his family, his hired help, and himself, causing suffering and loss of service; that he wanted the bees removed, and called for $400 damages. Mr. Van Wye denied it all.

The case had been thrashed out at the meeting of the beekeepers at the Oct. 7th session of the county club, and Mr. Van Wye was strongly advised to move his bees and avoid a suit. He in turn insisted that we should help him in the suit, as it was ours as much as his; for if he could be made to move his bees when some one wanted him to, others would have to do so, and there would be no place left to keep bees.

During the trial it was clear that Judge Fulkerth wanted to get at the exact facts and the proper remedy for the trouble. At a remark from an attorney the judge said in substance, "Bees are lawful property, and beekeeping a good business. What the court must determine is what the conditions in this case are." He asked more vital questions than the lawyers, perhaps.

The plaintiff said he fought the bees with his hat till he was exhausted; that they stung him and made him so nervous he could not sleep; that in striking at a bee with an oiler he struck near his eye and made a bad wound on his face; that he thought he would be in the insane-asylum in three months if the bees stayed there. The bees were located there in June, 1912, and he had offered the defendant a location on his place further from his house, where they would not bother him so much, but defendant would not move them. When questioned he admitted his health was poor before the bees were there.

Mrs. H. said she was stung three times the day before the trial; that the bees scared her by getting in her hair and clothes, agreeing with Mr. H. that their little girl had been laid up by beestings, but denied that Mr. Higgins was made nervous by the stings, saying she was the "nervous one."

A man 25 or 30 years of age, perhaps. was the best witness for the plaintiff. He lived near, and was stung on the temple while working for Mr. H., and lay unconscious for some time in the alfalfa. He had been stung on previous occasions without serious results, and supposed the results of that sting were from the place it struck him. The bees were thicker at Mr. H.'s place than where the witness (I forget his name) lived, but at the latter's place they were quite an inconvenience. He was so candid and fair in his statements that a person would have to believe what he said.

Willis Lynch, our county inspector, and J. G. Gilstrap, who had tried hard to keep the case out of court, gave long testimony about the location of the bees, their management, variety, what should be done with them, etc. The apiary was about 590 or 595 feet from the well, 100 feet from Mr. H.'s hog-corral. The only water provided for the bees when the case came to trial was a tub about a third full, in which was a grain sack on a float of some kind, probably a redwood board. The water was stale, and unfit for bees. There were no trees or other screen between the apiary and the well, except a partial screen of weeds part of the year, while the bees were located on ground too high to irrigate.

Several witnesses not mentioned were called to the stand, and several more present did not testify, as it was late, and the evidence was sufficiently clear.

When all the evidence was in, the judge said it was clear that the bees were an inconvenience, and they would have to be moved; that the plaintiff was unnecessarily nervous, but had suffered no financial loss, and the court could grant no damages; that he did not wish to work any unnecessary hardship on the defendant, and wished to know how soon he could conveniently move the bees. Mr. Van Wye would not answer directly, as he did not know that he could get another place for them. The judge informed him that bees are entitled to protection, but human habitation is of first importance, and suggested 30 days as the limit. The defendant preferred a rainy day late in the winter if they had to be moved. Then the decree came that the bees must be moved far enough from the plaintiff so that they would not annoy him, by Nov. 15.

Judge Fulkerth said, in summing up the case, that such little cases should not come into court, but should be settled as neighborhood affairs. He warmly commended J. G. Gilstrap for trying to keep the case out of court. Mr. Van Wye has the costs to pay. He had a Modesto lawyer, also one from San Francisco.

Modesto, Cal.

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BEEKEEPING FOR PROFESSIONAL FOLKS IN CITIES

BY W. M. COPENHAVER, M. D.

It is very important and very necessary that all who are closely confined by office work of various kinds find, sooner or later, some outdoor attraction, be it some of the various athletic sports or some such work as gardening, chicken-raising, etc.; and the more intensely interesting such livelihood may become, and at the same time proving a source of profit to the participant, the more likelihood will there be of its remaining a source of recreation. In the undertaking of almost any enterprise in life, it seems natural for one to consider the profit to be derived therefrom, and few of us care to undertake any work without the belief that there will be some return for the labor and energy expended. This seems to be human.

After considerable thought and study directed toward the choosing of a side line or "hobby," if you please, suitable for one of sedentary habits, one that would afford opportunity for considerable study, and at the same time bring one in touch with outdoor life, and because of its adaptability to life in a city, I have chosen that of beekeeping.

There are few cities, large or small, where a few colonies of bees may not be kept with more or less profit and a great deal of pleasure.

Dwelling briefly on the profit side of our hobby, I might say that, for the amount of capital invested, the returns from beekeeping will often show a larger profit for the expenditure than from almost any other enterprise; and as proof of this statement I may say that I started with one colony in the spring of 1908, which was my first year with bees, and increased it to nine colonies, and received 50 lbs. of fancy comb honey as surplus.

In my present location, a town of 16,000 people, where bees had never been kept, two miles from nectar-secreting plants, from one colony, bought the spring of 1912, I made an increase to four colonies, and took 108 lbs. of fancy comb honey.

During the year 1913 these four colonies gave a return of $15.00 per colony, spring count, with increase to 17 colonies, and $20 in prizes at the Montana State Fair. This shows in a small way what can be done on a back lot in the heart of a city, and proves the statement that, besides pleasure, there is also profit in keeping bees.

But there is the more important side of beekeeping for the individual of sedentary habits than that of profit. I refer to the thoroughly absorbing subject of the study and manipulation of these very interesting inmates of the hive. One can not become interested in the study of the habits and life of the honeybee without also becoming interested in plant life; for the life of the bee is so intimately associated with that of the flowering plants, especially those that produce honey and pollen, that the study of the former enlarges into that of the latter.

When weary with office cares and the ills and woes of others, how quickly one forgets himself and all else while manipulating the busy bees and studying the many wonders of the hive. So absorbing are their activities that one gains thorough relaxation, and returns to his work refreshed through this relaxation, and exhilarated by the enthusiasm which bee culture inspires. I have found the subject of beekeeping very fascinating, and an ever increasing interest seems to accompany its study. It seems to be specially suitable for professional folks, because the work connected with it can be performed at odd times, and does not need constant attention. If one must be away for some time the bees move quietly about their duties, regardless of our absence.

The subject of beekeeping is not all written as yet. New problems and new conditions are continually arising, and many surprises are in store for the apiarist. All in all, the student will find it a fascinating study, and much recreation and relaxation in it from office toil.

Helena, Mont.

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BEEKEEPING IN THE LARGEST CITY IN THE WORLD

BY D. M. MACDONALD

Perhaps London is about the last place in the world in which successful beekeeping might be looked for; yet it is an undoubted fact that, within a few miles of the very center of the city, it has been made to pay. I have seen small apiaries on the flat roofs of buildings, one in a beehouse, and several in observatory hives fixed in windows, and I have been informed of scores of apiaries all over the metropolis.

In some respects London is the Mecca of beekeeping in the British Isles. A very large proportion of the honey grown finds its way to its markets. Our leading appliance manufacturers and dealers are located there. Our monthly and weekly bee journals are published there. Three of the leading shows are held within its boundaries—the dairy, the grocers', and the confectioners'. To these all the best samples of honey which have stood first at local and county shows gravitate as a natural center for final adjudication. Our new Government Apiary and Lecture Rooms, carried on under the Development Grant, are located at the Zoological Gardens, Regent's Park. The British Beekeepers' Association has its library, reading room, and offices in the Strand, where all the business is transacted, and there country visitors interested in apiculture call, when in the capital, to talk bees.

No large apiaries exist within the metropolitan area, but countless small ones are carried on for either pleasure or profit. A single hive may, under exceptionally favorable circumstances, yield from 100 lbs. upward, and I am able to cite one case where 180 finished sections were obtained, and sold for 24 cts. each, thus yielding a return of $43.75. It is more interesting still to learn that right in London, only 3½ miles from Oxford Street, a fair-sized apiary can be carried on over a series of years, and that it can be made to pay. One beekeeper with two hives had a total return of all but 1000 lbs. in eleven years, and he would have exceeded it but that in the last two years he had foul brood. He had an average of 51 lbs., leaving out this period. On three occasions he had 100 lbs. surplus.

Mr. Baden-Powell keeps bees at Hyde Park Corner, in the very heart of London, and they not only keep themselves, but secure some surplus. Some of the hives over the metropolitan area are of the observatory type, and are kept in the drawing-room window where they are a center of interest to the lady owner as well as to numerous visitors, who very much enjoy seeing the bees and their wonderful works.

Bee lectures are frequently given in various parks in the metropolis, and of late the cinematograph has been considerably utilized to spread a knowledge of bees (and, incidentally, of honey) in places where the bee and its product were perhaps never before heard of. Recently 2000 children from twenty metropolitan elementary schools came with their teachers. in batches of about fifty, and had half-hour lessons on the bee The observatory hives shown proved intensely interesting. Seeing the queen was a delight; observing the bees' tongues sipping up syrup was much enjoyed, and hearing of that marvelous weapon the sting proved very fascinating to the youngsters. The *Telegraph* and the *Daily Mail*, two of London's leading dailies, devoted a large amount of space to bees and beekeeping a year or two ago. They even kept hives on the roofs of their offices, in the very center of the city, and issued daily bulletins in the season of the bees and of their doings. In this way they did much to popularize honey, and drew the thoughts of many to the marvels of the hive interior. Very many suburbanites started apiculture, and a beekeeper who went out and in among these, reports records of 60 lbs. of sections; 108 well-finished sections, and a host of 40 to 50 lbs. surplus. Swarming was not troublesome, as special precautions were taken to avoid it.

These crops were obtained near Tooting Common, some miles from Epping Forest, Nimbledon, East Ham, Hyde Park, South Kensington, Battersea, etc., and most of it was gathered from lime, plane, and fruit trees and bushes; but a good share was from mixed sources. Racks of sections were taken off perfectly completed, in some cases, in May. Queens have been mated in the city, and turned out quite prolific mothers in the early days of June. Proposals have been made from time to time to start apiaries in the public parks; but the initial cost, and the difficulty in finding qualified care-takers prevented the idea from bearing fruit.

Banff, Scotland.

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SOME DRAWBACKS CONNECTED WITH BEEKEEPING IN A CITY

BY HENRY REDDERT

There is no difficulty in keeping bees in or around a large city, provided the beekeeper is democratic and diplomatic. By democratic I mean that he should assure the same rights to his neighbors that he himself would demand if he were in their place. It goes without saying that bees at times will cause trouble to the surrounding population. Here is where diplomacy comes in. The beekeeper should be ready with adequate explanations for any trouble, however great or small, that causes discontent among his neighbors. I have had sufficient experience along these lines to know whereof I speak. I have often read something running like this: " I never have any complaints about my bees from the neighbors;" or, " My bees never sting any one in our neighborhood," and similar remarks. Notwithstanding these assertions, the fact remains that bees do sting the neighbors sometimes, especially during the honey harvest. Some people being stung are too modest to complain; others set up a yell like a stuck pig. But just let them be sweetened with a pint or so of honey, and all is well. In due time the neighbor will begin to ask questions about bees, honey, etc.; and if the beekeeper is a good conversationalist he'll soon have them on his side, and glad to know all about bees and the good they do to humanity.

I once had a neighbor who complained that my bees were puncturing all his pears. The fact is, he never had such fine pears before my bees pollenized the blossoms of his trees. This he admitted. After I explained the causes that led to the punctures (birds or hornets), and the good bees do in pollenizing the blossoms, he said, " Let the bees come over as much as they please."

I do not approve of keeping bees in an attic, tower, or housetop. The least scent coming from the windows of adjoining buildings during fruit and berry preserving time brings them by scores around the windows, trying to get in, consequently annoying the inmates, which finally leads to condemnation. These and similar circumstances should be considered when one embarks in the bee business. With this in mind, and a fair knowledge of the nature of bees from text-books and bee-journals, with nerve thrown in, I don't see why any man or woman who loves nature should not keep bees.

Cincinnati, Ohio.

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THE CITY BEEKEEPER CREATES A LARGER DEMAND FOR HONEY THAN HE CAN SUPPLY

BY L. D. MARTINE

Some of the professional beekeepers may feel that this special number will do them an injustice by encouraging beekeeping in cities, as that is where they expect the demand for their product. Others, no doubt, will feel that it does not affect them, as they sell to the jobber. Both, however, are mistaken; for what affects one in this case will also affect the other, as it is the demand made by the consumer that regulates the price received. The question is, " Will the city beekeeper increase the demand, or merely help supply what already exists? "

At present, the consumers depend on the grocers mainly to supply them with honey. so these grocers are the agents, either direct or indirect, of the honey-producers. He places the honey on the shelves with other supplies, and awaits the demand for it. He knows it is honey, and that is the limit of his knowledge regarding it. The patrons who buy it know very little more, and recognize it merely as a sweet. These are the conditions that have existed for many years; but a rapid change is now going on, and this is due to the progressive city beekeeper.

The best advertisement he has is his bees, and he can make a great deal more by working them to create a demand for bees and honey than he can by producing honey. There is better material for him to work on than there is for his bees. Almost any one living in the city becomes deeply interested when told some of the wonderful habits of the bee, and will appreciate an invitation to the city beekeeper's yard where the latter explains every thing about the bees, and also about the honey—the way it is gathered, the process it is put through which makes it easily digested, etc. The beekeeper in this way creates a desire for honey that never before existed; and since the bees are shown to be not "savage little creatures," he is apt to make a beekeeper, a honey-eater, or at least a good advertiser out of each visitor. He will then find a demand for his honey.

A good grade of honey in the homes of the people he has educated to its food value is highly appreciated, and the honey-eating habit is encouraged. It is wonderful to note how much such homes will consume, as it proves both economical and healthful; and the city beekeeper will be making sales to many he has been recommended to; and before he realizes it he will find himself in a profitable independent business as a side issue.

No doubt many beekeepers in cities have never realized these opportunities that are open to them. Others will think it too good to be true; but it is being worked out successfully by the writer, who feels that the city offers greater opportunities for beekeeping as a side issue than the country does as a profession.

Cleveland, Ohio.

FROM ONE COLONY IN A CITY TO A SERIES OF THREE APIARIES

BY J. P. MARTINE

In 1904 my health was such that my physician advised me to give up my court work—official court reporter—for a time, and take a complete rest, which I did. After a rest of four months he told me I could take up my court work if I would get interested in something that would give me outdoor exercise and take my mind completely off my court work each day after leaving my office. Following a friend's advice I purchased a colony of bees; but having no yard space I placed the hive upon a shed. The part of the city in which I live is thickly populated. My bees swarmed within two weeks after I got them; but I hived them, and they gave me between thirty and forty pounds of honey that season. I spent considerable of my spare time watching and studying the bees, and my health improved from the time I got them.

My bees continued to increase each year until I had eight colonies on the shed, and they never failed to give me considerable honey each season. In 1910 I had had such success in getting and disposing of my honey that I concluded to increase my bees enough so that I could devote my entire time to the bee and honey business. I therefore increased and purchased bees until I had 35 colonies in an outyard I had started 12 miles above the city. In 1911 I made arrangements to handle bee-supplies, and in 1913 my business had grown to such an extent that I resigned my position as official court reporter, rented a store in the central business portion of the city, and am now devoting my entire time and attention to the supply business and bees and honey.

I now have three beeyards, and handle the three-banded Italians exclusively. Every Saturday during the summer I have from fifteen to twenty-five persons at my middle yard—just inside the city limits—and demonstrate to them the manner in which the bees are handled and how the honey is produced, taken from the hives and extracted, and I never fail to have an appreciative audience. I have also taken out whole classes of schoolchildren. I still keep bees on my shed, and while they have to go quite a distance to get to the clovers, when it comes to gathering honey they hold their own with bees in either of my outyards.

Louisville claims a population of 275,000; and I am personally acquainted with quite a number of persons who keep bees—some of them in the very center of the city—and their bees will average as much honey as the colonies in the country. They are kept in attics, stable-lofts, on sheds, and in yards, by professional men, merchants, and mechanics, and seem to do about as well in one place as another. I have completely recovered my health, and my physician says it is principally due to my working with the bees.

Louisville, Ky.

Heads of Grain from Different Fields

650 Pounds from Four Colonies in Detroit

The past season has been a good one. I increased from 4 to 10 colonies, and have 650 lbs. surplus. The honey is mostly from sweet clover.

Detroit, Mich., Oct. 27. Fred Koepfgen.

A Large Yield in a City of 100,000

I have 13 colonies in the rear of my city lot; and while I had a very good crop of honey last year I could have sold twice as much if I had had it. The buyers come to the house to buy, without my making any effort to sell. They seem to think that honey produced in a city is a great novelty.

Youngstown, Ohio, Nov. 28. J. R. McCurdy.

Bees to Educate Three Boys

I had seven colonies in the spring, and took off over 500 lbs. of comb honey, and increased to ten colonies. I bought ten more hives for next year. I am absent from home two and three weeks at a time; but by shaking my colonies I did not lose a swarm this year. I hope to make the bees educate my three boys. I am glad I have been led into such a pleasant and profitable avocation.

Brownstown, Ind., Nov. 18. D. F. Rankin.

Four Colonies on a City Lot 75 by 120 Feet

I will try to tell about my success last season. Last spring found me with twelve strong colonies in fine condition on a city lot 75 x 150, four squares from the courthouse on one of the main streets. From these twelve I took 1307 sections of honey made from white clover, sweet clover, and buckwheat. This was all sold to the local trade, without advertising, at 20 cts. per lb., which netted me $210.25. Besides this I sold $34.50 worth of bees. I consider this doing very well, taking into consideration the small amount of time I had to give to them, which was in the morning before going to work, and after six o'clock at night.

Columbia City, Ind. Frank Langhor.

Increasing 3 Colonies to 17 in Two Years, and Securing 2100 lbs. of Honey, all on a City Lot

We live in the city on a lot 40 x 120. We have a chicken-coop on the back of the lot, with a good-sized yard to it, and in this yard we keep our bees. A year ago last fall we put five colonies in the cellar and lost two of them. The other three were in pretty good shape, and that summer we took off 500 lbs. of comb honey and got 8 new swarms. I put the eleven colonies in the cellar in the fall, and last spring we carried out the eleven, all in good condition, and this fall we quit with 17 swarms, and I took off 1600 lbs. of honey—800 lbs. comb and 800 of extracted honey. We had one little after-swarm come to us the latter part of June. I built it up and took 106 lbs. of comb honey from it, and the bees had plenty left to winter on.

Madison, Wis. F. D. Johnson.

What can be Accomplished in Four Years

Perhaps it would be interesting to know that, four years ago next spring, I placed an advertisement in Gleanings, seeking a position on a honey-ranch. I landed here at Elso with just $50 in my pocket. I went into partnership with Henry Willis of this place, and bought 50 stands of bees, he furnishing the capital. Last fall I bought out his half interest, and I now have, all my own, about 250 stands of bees which produced nearly 20,000 lbs. of alfalfa honey the past season; about 200 extra hives, frames with full sheets of foundation, 1000 supers, both extracting and comb—the former with either full sheets of foundation or combs drawn out; one bee-cellar, one honey-house, large power extracting-outfit, one I. H. C. auto truck, and one 50-horse-power Springfield roadster for joy-riding. Last, but not least, I have a honey market which will take at least 40,000 lbs. of honey a year. Can any one beat that?

Elso, Mont., Jan. 24. A. H. Bell.

807 Sections from Six Colonies, in Auburn, N. Y.

The inclosed report is from my notebook, telling the date and number of sections taken from each hive. The sections were all fancy, No. 1, and a few No. 2. I also have over 100 unfinished sections that I expect to use for baits. Hive No. 6 is a stray swarm that clustered on our hospital porch June 14, to which I gave all brood from the other hives, using Doolittle's plan described in "A Year's Work in an Out-apiary."

Hives	1	2	3	4	5	6
July 4, sections.......		32	42	20	70	
July 12, sections......	36	26	35	26	50	43
July 20, sections......	21	48	22	36	15	
August 23, sections....	40	42	37	30	42	44
September 20, sections.		20	10		12	8
	97	168	146	112	189	95

Total, 807 sections from 6 colonies.

Auburn, N. Y. Mrs. Joseph Raesler.

Castor Beans for Shade for Bees on a City Lot

I am only a backlot beekeeper, located here in a city of 30,000 inhabitants. Here one has many things to contend with that the man out in the country is free from. In the first place, we must not place the bees too near the house or the walks in the yard, or the "boss" of the house is liable to put in a vigorous protest. The neighbors have to be taken into consideration also; and to keep peace with all, and have the bees well located as to sun and shade is no easy problem with the limited space at hand.

I keep my bees in a small house, 6 x 10 ft. This provides the required shade; but in the house the light is poor and one can't see to work with the bees to advantage. Last summer I planted some castor beans sent me by a friend from the Botanical Gardens, Washington, D. C. I planted the seeds about five feet south of the fence on the north side of the lot; and when the plants started to grow, "Jack and the Beanstalk" were distanced a mile. The growth was very rapid and strong; and when the trees came to maturity they were from 6 to 8 feet tall, and some of the leaves were 2 ft. across.

I had a bracket on the fence to place a hive of bees on. The trees shaded this stand very nicely, and made an ideal place for one colony. The shade suggested to me that this would be a good opportunity to use the plants for other than ornamental purposes, and also an easy manner to get the desired shade when the hive-stands are in exposed positions. The plants can be trimmed from time to time; and as the season advances, if more sun is needed, say in September, cut the trees down.

I call the plants "trees" for the reason the ones I had were trimmed just as one would trim a shade-tree. I have promised to furnish seed to a friend out in the country about ten miles. He has 100 colonies of bees, and very little shade for them in the beeyard.

La Crosse, Wis., Jan. 17. Thos. D. Budd.

Sources of Honey around Portland, Oregon

I am not as yet a beekeeper, even on a small scale; but I hope to get a few colonies next spring. My work is very confining, and I shall not have a great deal of time to devote to bees, nor can I have room to keep very many of them; but with, say, five colonies (as I plan to start with five) I should be able to get some increase as well as a fair surplus of honey.

The part of the city in which I live should furnish good bee pasture, as there are lots of wild flowers in addition to dandelions, dogwood, and white clover. On the hills above us are myriads of dogwood, wild blackberries, thimbleberries, wild strawberries, wild peas, and numerous other flowers that I know no names for. In addition there are hundreds of acres of hazel brush that I suppose would furnish pollen enough for all the bees in the State.

On the open places on the hillsides, and down on the lower lands, including lawns, white clover and dandelion grow in profusion; so it looks to me as though I am admirably situated for keeping a few bees. We also have a kind of thistle here which bears a (matured) burr similar to the cockleburr (the blossoms are of a kind of shaving-brush shape, of the ordinary thistle), which must be a good honey-plant; for during the summer I noted one plant on which bees were working; and while I can not say how many of them, I would venture a guess at about fifty.

Portland, Ore., Oct. 17. D. C. Millican.

Bees in an Attic

I have a large attic in my house some 10 feet high in the center, and 36 feet wide, with sloping roof. It is perfectly dry. The house faces the north and south. I have been told that this would be a good place to keep bees. It is in a good residential section where there are plenty of white-clover blossoms all summer. Any assistance you may be able to give me will be greatly appreciated.

Cleveland, Ohio, Nov. 8. W. D. Fraser.

[There is no reason why you can not start beekeeping in your attic as you suggest. About the only objection to the plan is that it is a little inconvenient to take supplies up and down, and it is also a little difficult to manipulate the bees without having a good many of them fly out around the room; and as they can not find their way back they become lost.

The first objection named need not be a serious one if the work is planned as it should be; and the second objection can be overcome if the hive or hives can stand by a window, which, during the summer at least, is removed entirely. In the fall you can replace the window, allowing the bees only a small entrance, and the colony will winter very nicely, since the hive is well protected.

If your attic has a south window this would be the window in which to locate the colony of bees, for it pays to select a sheltered window if possible.

A great advantage in having the bees located in the attic is that they are up so high that very few persons will ever know you have any bees, and no one is likely to be troubled by them. There is hardly a city in the country that does not have a number of colonies of bees located in attics.—Ed.]

If a Beekeeper Wishes a Larger Income Let Him Get More Bees

I have just read Mr. O. L. Hershiser's article, p. 29, Jan. 1. To a beekeeper who wishes to make the most out of his bees I would say that I would not advise him to take on another line in connection with the bees. About two years ago I went into the machinery business as a side line, and thought perhaps that with a helper I could attend to the bees and at the same time make good with the machinery. Before I took on the machinery end of the deal I was averaging from $4.50 to $6.00 a colony per season Owing to the honey-flow and weather conditions I run mostly for extracted honey, but have found that since I have been doing both the bees have not averaged me over $4.00 per colony, because they have not had as good care. I find there is always something to do around the beehouse or apiary at all times for the betterment of the bees as well as to the profit of the keeper.

Any one who wishes a larger income than at present, and who has a few hundred dollars more to invest, will do well to put on a few more colonies of bees. He will be better satisfied in the end, and will have more dollars in his pocket.

I have seen king-birds eating bees by the hundreds when there were no drones in the yard to speak of. I also have shot these birds at different times, and found worker bees in their crops in great numbers. If these birds are allowed to hang around the apiary in great flocks, as I have seen them, they will weaken the working force of every colony.

Haskinville, N. Y. M. C. Silsbee.

A Good Record from Kansas

About May 1, 1913, I bought four colonies of Italian bees, paying $20.00 for the four, and $3.00 extra for fixtures. I brought them home and set them on places I had provided for them to stay all summer. The hives were in fairly good condition as to strength when I got them. About June 1, or with the commencing of white-clover bloom, I worked them according to the Alexander plan of increase, leaving the queen with one frame of brood and nine frames of foundation in the body below with queen-excluder over them. I set the old body with brood on top, then let them alone for nine days. On the ninth day I looked through them. The brood was all capped over, and three of the four had plenty of nice queen-cells capped over.

One hive had not started any queen-cells, so I let them stay as they were. One of the hives I did not think quite strong enough to divide. I cut out all queen-cells and let them alone without making any division. From the two other hives I set the top body off on new hive-stands. So you can see my increase in that way was from four hives to six. However, I formed a nucleus later on and built it up to a fairly strong colony by cold weather.

I worked the bees for extracted honey; but the drouth cut down the white-clover and sweet-clover crop about half, if not a little more than that. The season was so dry we did not have any fall honey—only a little which they got from the river bottoms, which are about two and a half miles from my place. However, my bees made a living after the clover gave out, but nothing more, up until frost. I know they got it from the river bottoms, as there were no live flowers nearer to my place for about a month or longer before frost. They gathered some surplus during a part of June. I sold $28.00 worth of extracted honey, and kept three gallons for home use. I sold it at 50 cents per quart, the parties furnishing the vessel into which they put it. My honey weighed full 12 pounds to the gallon. This surplus was nothing to brag about; but the price was good—16 2-3 cents a pound.

This is where the city beekeeper has the advantage of the beekeeper who pays freight, commission, and then gets a low price for his honey. I had customers who came back for more, but I had to refuse them or do without myself.

Kansas City, Kan. W. A. Dillon.

Our Homes

A. I. Root

Lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through nor steal.—MATT. 6:20.

Seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you.—MATT. 6:33.

Let us not forsake the assembling of ourselves together.—HEB. 10:25.

They that feared the Lord spake often one to another.—MAL. 3:16.

I have told you how eagerly I questioned every beekeeper and every one I could get hold of who knew any thing about bees when I was first attracted by that runaway swarm. After I had gotten hold of the book "Langstroth on the Honeybee" I became still more entranced with my new hobby. I hired a horse and buggy and hunted up the beekeepers in our immediate locality, but they all had box hives. Some of them had *heard* of such a thing as a queen, but they did not know for sure. At length I heard of an old farmer east of town who actually had his bees in Langstroth movable-comb hives. You can hardly imagine with what haste and anticipation I went over to his place. There they were, sure enough, in his dooryard—a dozen or more hives, just such as I had been reading about in that wonderful book. I can not quite recall, but I think he opened a hive and showed me a queen. Then we two all at once became fast friends.

I soon had some hives made, using one of his for a pattern, besides following the directions in the book. After I had my colony transferred to this Langstroth hive I ordered that $20.00 queen I have told you about. He asked me several times if I had got them in good shape to winter; "for," he added, "it would be a sad thing to lose a queen that cost so much money, besides being the first Italian bee brought to this region." Finally he went down to my home and declared my poor weak colony of Italians would not *hold out a month.* You see I had experimented with them, making them raise queen-cells, etc., until there were really not very many bees left. By his instructions I purchased a good strong colony and got my queen safely introduced.

At the time of which I am speaking I was manufacturing jewelry, and doing quite a good business. This friend of mine, Mr. George Thompson, was a devoted Christian, and one of the leading men in our nearby Congregational church. As I made progress with the Italians he used to drop in quite frequently to find out how I was getting along with the bees. After we had become quite well acquainted he came into the store one day and said:

"Mr. Root, you are beginning to have considerable property here."

He glanced around at our establishment, and then continued:

"I suppose you have it well insured?"

I replied in the affirmative.

"You have your home insured also?"

I assented as before.

"And your *life* is insured also?"

When I replied as before, he added something like this:

"Mr. Root, I am glad to know it. It has been remarked to me that, although you are making wonderful progress in your work, you are a careful and prudent business man. That is right and good. Now may I take the liberty to question a little further?"

I laughingly replied, "Go ahead, friend Thompson. I am glad to see you interested in my welfare, and I shall take great pleasure in answering any question you choose to ask."

I think that, up to this point in the conversation, I had no intimation of what he had in mind. So far as I can recall he said something like this:

"Mr. Root, you are managing admirably for the things of this world, but what 'insurance' have you for the world to come? What provision have you made for 'the home over there.'"

He pointed up as he said this.

I thanked him, and he hurried away; but although a very busy man at the time with bees and the little factory, watch-repairing, selling goods, etc., his remark kept ringing in my ears. The thought kept coming up like this; and let me put it in language as my good friends down south might say it—"Right smart" of the things of this world, but how about that "home over there"—the unseen world to which we are all hastening? What have you done about treasure in heaven? What progress is being made in *that* direction?

I was forced to admit that a frank and honest answer would have been, "Nothin' doin'." It would really have been true at that time, dear friends, that I paid little or no attention to what was going on in the world outside of bees and business. I was keeping track of the boy Edison, reading the *Scientific American*, and the farm papers that touched on bees; but I did not go to church nor to Sunday-school; and yet at the very time a prayer-meeting was being held in one of the upper rooms of my store I used to drop in and take a back seat for a little while, sometimes; but as I was not particularly interested I did not seem to catch on. I presume it was a little later—perhaps two or three years—that our two children, a boy and a girl who went to Sunday-school as regularly as the rising of the sun (thanks to the good mother), began to inquire why *papa* never went to church nor Sunday-school. I have already told you something about how it happened that I "woke up." I remember vividly one particular Sunday of going to Sunday-school. The superintendent put me in the men's Bible-class. My friend Thompson was the teacher. I remember wondering how it was that I had never before become intimately acquainted with the members of that class. They were good and bright men, and my heart warmed toward them all. In fact, it was at a time when I was just beginning to love humanity and God the great Creator. I do not think I ventured to take any part in the exercises that day. It was all too new to me. At the close of the lesson the teacher took out a little book and "called the roll." It seemed at that time (close to forty years ago) that it was the custom in the report to give the number of regular attendants and also the number of visitors. My good friend had his pencil raised from the book a little, and said, "Mr. Root, shall I enroll you as a regular attendant of our class, where you know you will be most welcome? or shall I put you down as a visitor to-day?"

How well I remember the kindly look he gave me. I hesitated a little. It was a crisis in my life. God only knows how *grave* a crisis it was. Years of anxiety and years of turmoil, contrasted with years of joy and happiness hung on my decision. You know, dear friends, I am impulsive, and have been all my life. I finally replied, a good deal under the sudden impulse, and said:

"Friend Thompson, you may put me down as a *regular attendant;* and, God helping me, I am going hereafter to Sunday-school every week in my life."

I do not know what he wrote down in that little book. It is probably lost by this time; but I *do* remember I felt troubled about it right away afterward. Not only my good friend but toward a dozen others heard my declaration; and above all, and incomparably *more* than all, *God* heard it. I called on him to witness my pledge or vow, if you choose to call it so, that I was going to Sunday-school from that time on, every week of my life. I not only had stepped through, but I had put up the bars behind me. There was no retreat. I could not well ask him and the good friends I met on that momentous Sunday to let me *recall* those hasty words. There was nothing to do but to push forward; and as I pushed forward my footsteps grew lighter and happier every day of my life. I soon learned there was a weekly prayer-meeting, and my pledge seemed to include that prayer-meeting also. To be consistent it also included the preaching service, morning and evening; and pretty soon it began to be remarked that, if no one else were present, *A. I. Root* was sure to be unless he was too sick and hence could not go. My punctuality has been commented on wherever I have been; and as of late I am really obliged to get up nearer to the teacher or preacher, my invariable presence is more conspicuous. Please do not think, dear friends, that it was only a hobby of mine. A good pastor away out in California once said that, during all his life, he had noticed that those who are crowded up close to the sacred desk are the ones who got the most good; and accessions to the church always come from that part of the audience nearest the speaker. Our pastor has of late been urging at times—yes, vehemently urging—the members of the church to come up in front, and to leave the back seats vacant for strangers or those who do not go to church very often. I can not understand why so many good people crowd into the back seats, away off from the front, when it is such a pleasure for me to get up close to the speaker. There have been spells during all of these forty years when I was too sick to go to church; and sometimes I have ventured to go when the rest of the family remonstrated, and I always feel better after going to church, Sunday-school, or prayer-meeting, and it *is* a good thing for the *health* to meet with God's people. I feel sure it has been the means of prolonging *my* life—my regular habit of being on hand at religious worship. Out in California, away up in Michigan, and one time down in Florida, my friends informed me that there was no Sunday-school; but in all three places I managed to have at least a sort of Sunday-school when the time came around; and in at least two of the places a church has been built up where I started a Sunday-school. Assembling with God's people on his holy day *is* laying up treasures in heaven. Giving your money and your time to the cause of temperance, repressing gambling, the white-slave traffic, and all such evils, is laying up treasures in heaven. If men do not tell you so, the Holy Spirit will. What do the baubles of this earth amount to compared with "treasures" laid up "where moth doth not corrupt and where thieves do not break through nor steal"?

High-pressure Gardening

HAVING THE GROUND ALL OCCUPIED.

After our "high-pressure" soil has been carefully tile-drained, worked up fine, with all trash plowed or spaded under, manure and fertilizer worked in, it is of the utmost importance that we have a plant of some kind, wherever there is room for a plant. Down here in Florida sometimes *one hundred* dollars' worth of fertilizer is applied to a single acre. Now just think what folly it would be to have "missing hills" or spaces where nothing is growing in the rows! worse still where only weeds are allowed to grow. I have recently spoken about saving your own seed so as to have every kernel of corn that is planted come up; but this can not always be done. I have also spoken of planting field corn, not only the second time but even the third; but this last planting usually gives only fodder, which is better than nothing. I have also told you about what a crop of white beans we secured, with no cost except the price of the seed and the labor of planting them when the corn failed, or when the crows pulled it up. One season we raised several bushels in this way, and they were sold to our factory help for a good price as soon as they ran out from the thrashing-machine.

Well, in truck-gardening there have been many attempts to grow something of value wherever there happened to be missing hills, or perhaps a space to get in a *row* of something. Cabbage-plants are often put in; but, as is the case with white beans, when the main crop is off, the cabbage or beans, or something else, may not be ready to harvest. Let us consider a moment the importance of having another crop occupying the high-priced ground the *very day* the first crop is removed. I remember, years ago, telling Mrs. Root one morning to take a good look at a fine patch of Early Wakefield cabbage. Said I, "Sue, before sundown every cabbage will be off, and the ground covered with growing strawberries." We did it; and by the aid of a transplanter I had invented, scarcely a strawberry plant wilted. The above illustrates finely the advantage of filling vacant spaces with something that can be all cleaned off the "minute" the main crop is harvested. Here comes in, "gentle reader," my latest "new discovery." Dasheen will fill the bill, for it is *always* ready to harvest, the easiest thing to transplant, and, if you want further proof of the value of growing shoots for food, read the following from a bulletin just issued from the Department of Agriculture by our good friend Prof. Young. I have already spoken of the difficulty of keeping the large central corms after being dug, and this solves the problem. The bulletin is entitled "The Forcing and Blanching of Dasheen Shoots," and contains five beautiful cuts. I quote as follows, omitting the cuts:

> As the growing of the dasheen as a tuber crop begins to assume commercial proportions, it seems desirable to make available to growers and others who may be interested the details of a special treatment of the corms (large spherical tubers) by which a delicate fresh vegetable for winter use may be obtained. Credit is due to Mr. P. H. Dorsett, of the Bureau of Plant Industry, for the original suggestion of raising the shoots in this way. Other workers associated with the bureau have also contributed helpful suggestions during the process of the experiments. Acknowledgment is also due to Dr. J. H. Kellogg, Battle Creek, Mich., for carrying out the extensive greenhouse-bench experiments illustrated in this paper.
>
> The young blanched shoots of the dasheen make a very tender and delicious vegetable and are used much like asparagus. The flavor is delicate and is suggestive of mushrooms.
>
> CULTURE.
>
> To obtain the shoots, corms, weighing 2 to 3 pounds or more, are planted in a fairly warm place in very moist sand or sandy soil. A half-and-half mixture of sand and ordinary potting soil has given good results. Wet sphagnum moss has also been used, but the sandy soil is probably better. The corms are just covered, the terminal bud being at the surface. Provision must be made for keeping the shoots in total darkness from the time they begin to grow. Water should be supplied often enough to keep the sand or soil continuously moist.
>
> Several ways of forcing and blanching dasheen shoots have been tried, and all have been successful in that satisfactory shoots were grown. In any instance, however, in which the raising of shoots is to be undertaken, the method best adapted should be selected. In the first experiments made by the Department of Agriculture, both sand and sphagnum moss were used in which to plant the corms. In one of these, blanching was accomplished by keeping the shoots covered with sand, while in the others a frame covered with several thicknesses of burlap was used. The boxes in which these experiments were carried on were placed in a warm greenhouse on a bench that was supplied with bottom heat.
>
> Neither of the foregoing methods is adapted for use where the production of shoots on a large scale is desired. For such a case, provided the weather is not too cold and a suitable greenhouse is available, a bed may be prepared under a bench. The space may be darkened by hanging several thicknesses of heavy paper or burlap from the sides of the bench. This plan is suited to the spring of the year, while those methods by which bottom heat can be applied may be used at any time after the corms become available, in the late fall or early winter.
>
> The method which is probably best for large-scale production is to use a raised bed provided with bottom heat. A cover practically light-proof and with sides 18 to 24 inches high, is required. The temperature inside this should be about 70 degrees Fahr. The soil (or sand) should be a little warmer, say 80 degrees. To obtain this temperature it is best to enclose partially the space beneath the bed.
>
> The first crop of shoots is usually ready for cutting in 35 to 40 days after planting. From 6 to 10 cuttings can be made at intervals of 10 to 14 days, depending upon temperature and the size of the

corms used. The shoots are cut close to the corm, and, as far as practicable, before the leaves begin to expand. They will then usually be 8 to 16 inches long.

After the corms become exhausted, which is indicated by the weak growth of the shoots, they are discarded.

Out of doors in a warm region, as in Florida, the corms may be planted in rows in sandy soil, and the shoots blanched by ridging up the soil as growth progresses. Instead of ridging the soil, boards may be used, as in blanching celery, but the shoots must not at any stage of their growth be exposed to light for any considerable length of time.

Our readers of last year will recall that these bleached shoots were frequently mentioned. Well, in digging our dasheens in November it was rather difficult to get out every small tuber, and, as a consequence, they are all the time coming up here and there. As the garden was spaded pretty deep, many of these "volunteers" have long bleached shoots before they get up to daylight, so we have the "asparagus dasheen" for just digging them out.

About two weeks ago neighbor Rood said some stable manure would help my stuff on the new ground, and I bought a load ($3.00). Well, after it was well worked in with a hand cultivator we had a very heavy rain, and this manure, in addition to the commercial fertilizer, just "hit" the buried dasheen tubers, and their ivory-white shoots are now sticking out all over the garden.

NORTHERN-GROWN SEED POTATOES FOR THE FLORIDA TRADE.

In order to give you just a little glimpse of the traffic in growing seed potatoes for the Florida truckers I clip the concluding paragraph from a letter from a very good friend of mine.

Florida is planting an immense acreage to potatoes this season. Our potato sales into Florida for planting alone must exceed 50,000 bags of 150 lbs. each, since Nov. 1, 1913. I am keeping my eye on the dasheen, and expect to be selling them (southern grown, of course) within two years at least. Our seed-potato trade includes Texas, Florida, Louisiana, North and South Carolina, Georgia, Alabama, Virginia, New Jersey, and Delaware.

Malden, Mass., Feb. 6. EDWIN E. HARRINGTON.

One of the first things we did when we got here in November was to plant some potatoes in the garden, and we have been planting more and more as fast as the ground was ready; and if you could call on us *now* (February 10) I would show you the finest-looking potatoes *I* ever saw, and the new ones we are now digging are as fine as they look.

FROM PRODUCER TO CONSUMER.

The following hits so many nails squarely on their respective heads, we clip it entire from *Farm and Fireside* of Nov. 22:

SELLING HIGH-CLASS HONEY

By K. E. Hawkins

"George, I'll give you fifteen cents for all the honey you'll bring me this year," remarked the groceryman to a steady farmer customer.

"Not on your life," was the ready reply. "Why should I sell it to you for fifteen cents when I can get twenty for all I have, and more too?"

There is the rub with the farmer beekeeper. The storekeeper, the commission man, and a dozen others fleece him out of half he might make in the honey line, and it's usually his own fault. This man sells his honey to private customers, getting the best retail price for it, instead of turning it over to the storekeeper at five cents less a pound. True it means a little more work, but work brings its reward.

PURE HONEY HAS A DEMAND.

When your honey crop is ready ask your wife to put a case or two in the buggy when she goes to those private customers with the butter and eggs. They are always glad to get honey the purity of which is assured. Then, too, they always pay top-notch prices, as they do for the good butter. I know one farmer's wife in Illinois who makes one trip to Joliet every week of her life with butter and eggs. Her husband has nine swarms of bees, and this very year the product of the bees has been over one thousand sections of marketable honey. Nearly every private customer, and they have many, in Joliet, has ordered a case of honey from the sample she showed along with the butter and eggs. Nearly every customer had a neighbor or two who bought some of the product when they saw it, and were told about it by their friend.

"After I got home last night wife made hot biscuits, and we had some of that honey you gave us. Say, it was good. Can't you send us twenty pounds by parcel post?" might well be the text of a letter to a farmer from a friend. The new rate would allow the sending of twenty pounds for fifteen cents within 150 miles from the farmer's postoffice. Every farmer has many relatives and friends he can drop a line to, and sell a great deal of honey this way. In fact, I know of an Iowa farmer who has already shipped some five hundred pounds this way, solely on orders got from letters written to friends who knew by experience the value of his products.

WHERE THE MAN HIMSELF IS IMPORTANT.

The whole thing is marketing it yourself, saving the middleman's and several other betwixt men's profits on your own goods. Get a small rubber stamp, and stamp your name and address on each section. You will be surprised at the number of orders it will bring. Be sure your honey is clean, and that the surface of the sections is cleaned. Appearance forms an important price in grading, and grading makes the price. Don't sell combs which are broken and leaky. Poor honey on the market lowers the price of all other honey there. Most people will buy any thing because it is cheaper. Poor honey is always put out at a lower price.

I am pleased to note there seems to be just now an unusual movement to get *producer* in touch with *consumers*. Even the manufacturers of poultry-netting and fencing are offering to send fencing direct to farmers, and, more still, no pay until 30 days' trial. The Kitselman Fence Co. (see advertisement) send their fencing anywhere, and if not satisfactory in price and in every other respect they pay the freight back again. Send to Muncie, Ind., for their elaborate catalog.

"TERRY AND TEMPERANCE."

Friend Root:—I shall be 77 years old next February, and have practiced Terry's methods for years, and do almost as much work now as I did 40 years ago.

Doesn't it do you good to see how the drys are gaining? We have a real President at Washington now.

Belleville, Ill., Jan. 26. E. T. FLANAGAN.

Gleanings in Bee Culture

VOL. XLII. MAR. 15, 1914, NO. 6.

POLLYANNA
THE GLAD BOOK

By ELEANOR H. PORTER, author of "Miss Billy" and "Miss Billy's Decision;" illustrated, cloth-bound, $1.40 postpaid.

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Twelfth Printing

Read some of the press comments:

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Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.
H. H. ROOT, Assistant Editor. E. R. ROOT, Editor. A. L. BOYDEN, Advertising Manager.
A. I. ROOT, Editor Home Department. J. T. CALVERT, Business Mgr.
Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLII. MARCH 15, 1914 NO. 6

Editorial

THE HEAVY SNOWS AND CLOVER.

THE heavy snows that have covered the ground all over the North during the last month will go a long way toward insuring a good crop of white, alsike, and sweet clover. The snows not only protect the clovers, but thoroughly wet down the soil for the early spring growth.

WEATHER IN SOUTHERN FLORIDA.

THE weather has been very beautiful in Bradentown—bright sunshine and a cool crisp air while the Northern papers report blizzards, zero weather, and snow. It has been cool at night, in the morning, and evening, and warm during the middle of the day. Ordinarily it is much warmer than this; but the exceptional cold weather in the North has had its influence in the South.

THE COLD FEBRUARY AND ITS POSSIBLE EFFECT ON WINTERING.

THE exceptionally cold February throughout the North, preceded by a comparatively mild December and January, may have a bad effect on outdoor-wintered bees, particularly if brood-rearing got much under way in the warmer part of the winter; but the cold coming so late probably will not do much damage if March is not too severe. The cellared bees of course will be all the better off for the cold. We are not sorry that the most of our bees are in Florida this winter, and the rest in our Medina cellars.

OUR COVER PICTURE.

THE cover picture for this issue shows the result of taking a colony of bees from a tree, as described by J. Bakula, page 221, of this issue.

If the work is done at the right time of the year and in the right way, a good strong colony of bees may often be obtained besides considerable honey. Ordinarily it does not pay to remove bees from trees in the fall; for unless conditions are unusually favorable the colony obtained can not be wintered with any degree of success. Very early in the fall might be all right if the bees have time afterward to adjust themselves to their new surroundings; but, of course, unless one has watched the bees in the tree for some time he runs the risk of having all his trouble for nothing. More than one large tree has been cut down in the fall, revealing only a late swarm, and a weak swarm at that, with practically no honey.

THE ROOT BEES AT APALACHICOLA.

THE last reports from our apiary on the Apalachicola River show that the weather has been cool and unfavorable during the last two weeks of February. Notwithstanding, our Mr. Marchant in charge says the bees have been breeding right along, and that he is now about ready to put on upper stories; but he has had to feed. The bloom from ty-ty is just opening up, and it is expected that the yard will be on the boom. Before swarming, the two-story colonies will be divided and another yard established.

E. R. R., now in Florida, after visiting the southeast coast, will go on up to Apalachicola, arriving there from the 12th to the 15th of March. The weather was so cool on coming into Florida on the 13th of February that he decided to visit our apiary just before his return to Ohio. The deferred visit will give him a better opportunity to study conditions and thus better determine whether the experiment of moving carloads of bees into this region for increase and honey is a success.

AN EXPLANATION.

QUITE by accident, we left out the last half of J. L. Byer's discussion in the last issue relating to the condition of the honey market in Ontario. As his first paragraph on the subject was not very complete, we hasten to place the rest of it before our readers at this time. The second paragraph in question is as follows:

> As nearly all beekeepers in Ontario know, for a number of years the Ontario Beekeepers' Association has appointed a committee each year to gather statistics as to crops of honey, and then they advised each member as to what price they should expect for their crop. I suppose that, if the beekeepers had been in-

terviewed at any time previous to August, 1913, 90 per cent of them would have said, and truthfully, too, that this committee had put thousands of dollars in the beekeepers' pockets during the last five or six years. This year, as usual, the committee did a lot of work and sent out the usual report; but in this case, for reasons neither they nor anybody else thought of at the time, the price they recommended proved to be too high to move off the honey; and what a different story there is now on the part of some producers! Some actually had the nerve to write letters saying that the "ring," and other choice epithets of like nature, had issued the price list for the purpose of holding back others so that they (the committee) could sell their honey at the higher price before the general drop in prices would come into effect. The men on this committee have done a lot of work for no monetary consideration, for years; and to think that for once they in common with nearly all other beekeepers did not foresee the abnormal conditions ahead they should be accused of crooked work—candidly, Mr. Editor, you wouldn't print what I feel like saying, and I am not a profane man at that. Just to give the lie to such insinuations, I might say that the men on this committee did not sell in the early market, and at least one of them has the bulk of his crop on hand at the present time. I might also say that I was not a member of said committee; but I did attend their meetings on invitation, and acted in an advisory capacity along with the members. This being the case, I take full responsibility with the members in so far as being mistaken in our estimates and in not anticipating the dull times; and I repudiate any crooked methods just as emphatically as though I had been an actual member of the committee in question. These are pretty plain remarks, but no plainer than the occasion calls for.

PROOF THAT DISEASE CAN NOT BE TRANSMITTED BY COMB FOUNDATION.

At the Pennsylvania State convention at Harrisburg, Feb. 20, 21, the question came up as to whether the use of comb foundation is not responsible for the rapid spread of disease. This point has been raised a good many times in spite of what we consider very good proof to the contrary. Some years ago experiments were made with a view of transmitting foul brood by using foundation made from wax rendered from foul-broody combs; but these were not successful. However, in our opinion the strongest proof that foundation is not responsible for the transmission of disease is that it is being constantly used in healthy apiaries where there is never any disease. There is scarcely an apiary, large or small, in which comb foundation is not used every year. In case of large apiaries hundreds of pounds are used. Most makers of comb foundation divide the wax which they receive into two grades—the light and the dark. The light, being made principally from cappings, is used for making the thinner grades of foundation used in supers. The dark, generally rendered from old combs, is used for brood foundation. Now then, while it is practically impossible for any maker of foundation to tell whether the wax he receives is made from foul-broody combs, it remains a fact, we believe, that considerable of the dark wax made into brood foundation was originally rendered from foul-broody combs. Perhaps most of such wax is made from old combs in box hives, crooked combs, etc.; but much of the wax is from diseased combs, the exact proportion, of course, no one being able to ascertain.

Here is the point: Assuming that a large proportion is made from wax rendered from diseased combs, if such foundation had the power to transmit the disease into the colonies in which it is placed, then we should expect foul brood to break out immediately all over the country to such an extent that the beekeeping industry would be almost wiped out in the course of a single year. As a matter of fact, there are hundreds and thousands of apiaries where foundation is used year after year—brood foundation, too —where disease has never been known. Now, if there is any stronger proof than this we should like to know of it.

It might be argued that strong colonies may be able to resist the disease. This might be true in case of European foul brood, but it is certainly not true in case of American foul brood.

HOW DOES DISEASE TRAVEL?

In our opinion there is nothing strange about the transmission of disease among bees. The most direct cause is the tendency of the bees to rob openly and violently during a period of honey dearth. Bees, when possessed of the robbing mania, will often go further for honey than they will for the nectar of the flowers during a honey-flow; and the easily overpowered colonies, weakened by disease, become the prey of these mad robbers that seize the stores only to find, later on, that, by so doing, they have "poisoned" their own brood, and accomplished their own downfall. In rare instances bees have been known to go seven miles for the nectar of the flowers. This shows that an apiary can hardly be expected to remain free from disease indefinitely if such disease exists even four or five miles away.

CITY BEEKEEPING IN FLORIDA.

Intensive farming, market gardening, and the phenomenal growth of the towns and cities in Florida, are driving the keeping of bees more and more into the outlying districts where the hand of man has never touched the ground. On this virgin soil will be found the palmettos, gallberry, and pennyroyal, all of which yield honey. In other parts will be found the mangrove and the tupelo.

An exception to the rule of the city and the garden driving out the bees is the mammoth orange and grapefruit groves. It is in these that the hand of man has developed an important and increasing source of nectar supply. These groves and the uncultivated areas of palmetto furnish a blend of a beautiful light-colored fine-flavored honey. There is scarcely any thing better for table honey, north or south, than a palmetto honey with the flavor and aroma of the orange-blossom. The time will come when there will be a distinct demand for it, just as there is a demand for Florida oranges and grapefruit.

ORANGE HONEY.

This is coming more and more to be a staple article of commerce, not only in small but in car lots. One who has not seen the mammoth groves of citrus fruits in California and Florida can not form any conception of their vast areas, covering square mile after square mile of territory. While the groves in Florida are smaller they are more numerous and more scattered than in California. From the latter State orange honey is being shipped east by the many carloads, as the large honey-buyers will testify. In Florida an orange honey is more apt to have a blend of some other source like palmetto; but it should not be understood that no *pure* orange is produced in Florida. The larger and more numerous the groves, the purer will be the honey, especially if the territory adjoining is under cultivation, as is the case in many sections of the State.

FLORIDA LAND, GOOD AND BAD.

As a rule the character of the soil varies so much that some areas will be productive while that immediately next to it is too poor to produce any thing but scrub palmetto. For instance, here will be a fine piece of hammock land that will grow any thing from celery to oranges. Right next to it will be an area of white sand with no hardpan beneath. On the former, one can get good returns from his investment. On the latter, he can get no returns, and he will be a sadder and a *madder* man—mad enough to kick the real-estate agent who sold him, clear into the middle of the Gulf of Mexico, where he can not "catch another sucker." Some "strike it rich;" but many poor suckers are left stranded without a penny to get back.

Speaking about real-estate agents, there are plenty of them all through Florida. In some places they are literally thicker than bees. It is actually true that the country could afford to have "more bees" and less of some of these sleek, oily-tongued chaps. A tourist seeing the numerous signs of real-estate agents in St. Petersburg very innocently asked a Florida cracker how many there were in the city. "As many as there are inhabitants," was the instant response. While this is a slightly exaggerated statement, the craze to buy and sell land permeates a large part of the population. In many instances the land has doubled and tripled in value in the space of two or three years. Such sudden wealth has developed an unhealthy mania to "get rich quick" that is more or less pronounced—a condition that is certain to bring disaster sooner or later.

We see precisely the same thing in Oklahoma, in California, in New Mexico, Arizona, and Oregon. There are honest real-estate men in Florida as everywhere else. There are men there who are proud of the business they have done for their clients.

THE FOUNTAIN OF ETERNAL YOUTH.

There are numerous chances to buy good land at right prices, and there are thousands who have found home and health in the State. It is literally true that many with failing health, or who could not stand the Northern winters, have found a new lease of life in Florida. Not a small part of the population were *forced* to come south or die. One man in the last stages of Bright's disease came to Manatee as a last resort. He was directed to eat plentifully of grapefruit, drink from the Manatee spring, and live outdoors. He is to-day a well and rugged man, the manager and owner of a large truck-farm. He certainly looks as if he had found "the fountain of eternal youth" that the Spaniard of old sought and did not find. While we don't believe much in the curative value of spring waters in Florida or anywhere else, we do believe that the Florida outdoor air has performed miracles in restoring health. To see and talk with those that have been cured is to believe.

WILL THE BOOM IN FLORIDA LAST?

Many believe that there is bound to be a slump in the present exaggerated value of lands in the State; that such boom times can't last; that there will come a time when the "get-rich-quick" mania will exhaust itself; that in the mean time thousands who have "invested" will lose their hard earnings. While this is bound to be so in some places, and to some extent in all places in the State, it is to be hoped that it will not be true generally. As long as there are thousands and thousands of sick and overworked people in the North needing a rest and a warm climate during midwinter, there will be a demand for homes and land. The average person, if he does not take time to investigate thoroughly before investing in land—especially land remote from a good town or water front, will lose out; for most of the land in the State is good for nothing, either to-day or at any time in the future. The three elements that determine values on land in Florida are water front, proximity to a good town, and productiveness The man or agent who can guess where a big town or resort will locate will strike it rich if he can live long enough.

A. I. ROOT'S FLORIDA VISITORS; AN OPEN LETTER FROM E. R. ROOT TO THE READERS OF GLEANINGS.

FROM one to half a dozen people almost daily visit A. I. Root at his Florida home in Bradentown. There is nothing great or remarkable at his place; but our readers evidently want to see the man whose writings on home, garden, and religious topics they have read so long. Said a visitor the other day, " There are just two men in this world I have been wanting to see. One is Elbert Hubbard and the other is A. I. Root. Excuse me," he corrected, " I mean A. I. Root and Elbert Hubbard. I shall go back to my friends now and say I have seen Mr. Root;" and he evidently was pleased; but there are some, doubtless, who go away with a different impression when they see a little old man in old clothes with cap drawn down over his ears, who gives them only a moment of his time, and who possibly rather abruptly excuses himself, and they see him no more.

In all fairness to Mr. Root, it should be stated that he was never of robust health. Once, as a child, he was given up to die; but his mother, the neighbors said, would not let him die. From childhood up he suffered from frequent lung trouble, and during the intervening years he has had to be very careful of his health. The building up of two large businesses during his earlier manhood soon put him where it was thought he would not live long. The doctors prescribed midday naps and letting go some of his business cares. He did not readily accept the latter part of this treatment until a siege of malarial fever, which nearly took him away, compelled him to relax. His boys came out of college, and from then on he gradually let go of the active care of the business. This, fortunately, enabled him to go on with his experimenting and writing until now many who have followed him these years, and read those lay sermons, are anxious to see the author.

Nearly seventy-five now, his years have begun to pull upon him, so that he is obliged to take not only his noonday nap but one or two more during the afternoon and evening. If a visitor perchance happened to come upon him just before one of these naps he may be surprised and pained at the abruptness of the interview. To apologize or explain might make matters worse.

The fact is, that there are times when A. I. Root is physically unable to give his callers much attention. At other times, fresh from a nap, his visitor may be surprised at the exuberance of his enthusiasm in showing his garden (particularly his *dasheens*), his chickens, his ducks, and his tropical plants around the house. Such a treatment seems wholly in accord with the style of his writings. The abrupt interviews perhaps seems to be the very antithesis of his Home papers.

No one regrets more than Mr. Root that he is unable to give to all the same considerate attention that he gives to some. The former may be justified in the belief that the *real* A. I. Root is not the same as the A. I. Root on paper.

Right here it is proper to remark that when A. I. writes matter for publication he does it in the *fresh* hours of the morning, or after a nap in the afternoon, when he is at his best. In this connection, also, it should be said that Mr. Root has no office force at his Florida home—not even a stenographer or a clerk. His replies to the numerous questions that are sent to him at Bradentown, if at all, must necessarily be brief.

I wish to suggest that all questions be sent to the Medina office. I have studied Florida, and am fairly familiar with what my father is doing, and his views on various subjects. As I am in Medina eleven months in the year I can, with our office force, the dictaphone, and stenographer, answer most of the inquiries that come in. I make this suggestion that father may prolong his life, and thus give thousands the benefits of his Home talks and lay sermons. The answering of many letters is becoming a serious task to a man of his age.

A. I. says visitors are always welcome at his Florida home; but if any one of you should get a short visit or interview you will know that it is not because it is *you*, but because you *happen* to come at his nap times when it is absolutely necessary that he take a rest, and without which his Home talks would soon be no more.

E. R. ROOT.

Bradentown, Fla., Feb. 27.

Stray Straws

By Dr. C. C. Miller, Marengo, Ill.

Henry Reddert disapproves of bees on housetops because the bees try to get in windows in time of preserving fruit, p. 193. Why should bees on housetops trouble more than bees on the ground?

"Bees do not put different grades of honey in the same cell," p. 74. No, nor different colors of pollen in the same cell, nor visit more than one kind of flowers on the same trip. That's the rule, but there are exceptions, friend Hewes, in all three cases.

Alexandre Astor, *Apiculteur*, 6, says science shows that honey contains mineral salts—salts of iron, potash, lime, phosphates, etc., and that these are *indispensable* to the formation and maintenance of living organisms. Since sugar is almost entirely deprived of these salts, bees fed almost solely on sugar must necessarily deteriorate.

"The Outlaw," p. 178, trusts "that all those who are true apiarists at heart will understand and forgive his acts as an outlaw." That might pass for a joke; but taking up a column or so to prove that he is really a breaker of valid law can hardly come under that head. Let us hope that "to be continued" may give the key to the puzzle.

A variation of the McEvoy treatment by E. G. Brown is given in *Review*, p. 12. Prepare a hive with frames of foundation or starters, only let there be one frame of drawn comb. Brush the diseased bees into it, and when they have been in the hive long enough to empty their sacs, draw out the comb of honey, carefully brush off the bees in front of the hive so as to scatter no honey, destroy the comb, and replace it with a frame of foundation.

Endorsing the editorial on European foul brood, p. 2, I may say that, if it were left to me to decide whether it should continue in this neighborhood or not, I should hardly know which way to vote. [Do you mean that European foul brood has been a blessing to you in that it has eliminated the black strain of bees, or the careless haphazard beekeeper, or both? It is certainly doing both, and therefore to some beekeepers, at least, it is not an unmitigated evil.—Ed.]

Longevity I am inclined to believe an important factor, and I am quite willing to be convinced that greater longevity brings greater storing. But I'd like to have some proof that the extension of life is in the gathering period, and not in the previous portion of the bee's existence. We are told that in the busy season a worker lives 6 weeks—16 days as a nurse-bee and 26 days as a gatherer; that is, 62 per cent of its span is spent at field-work. If, now, we can get a bee to live 12 weeks, what gain will there be unless more than 62 per cent of its life is spent as a fielder?

McHenry County, Ill., in which I live, has a "Soil Improvement Association," partly supported by the U. S. Department of Agriculture, with a resident Soil Expert belonging to the Department. There have been planted 350 acres of alfalfa, and for the coming season 115 bushels of alfalfa seed have been bought. But the special thing I wanted to tell you is that 20 bushels of sweet-clover seed have been bought, or more than one-sixth as much as alfalfa. So far as I know, that is without any reference to bees, but solely for hay and pasture. It shows that sweet clover is forging to the front pretty rapidly, and that Uncle Sam is helping to get it there.

"Increasing the super room did no good." That's quoted, p. 83, from Wilmon Newell, as referring to prevention of swarming. I'm a bit skeptical about his meaning that without qualification. I think he believes that, if bees are crowded for super room, it favors swarming; and that's not such a great way from saying that decreasing super room favors swarming; which, again, is not so far from saying that increasing room favors prevention. Personally I am of opinion that there are cases in which, with timely enlargement of super room, there is no swarming, whereas without that enlargement the bees would have swarmed. My practice accords with that belief. Whereas I formerly added an empty super beneath as soon as the lower super was partly filled, I now add an empty super on top as well. Especially do I believe in abundant super room *before* the bees begin to have swarm-thought. ["Increasing the super room did no good" was not a direct quotation from Wilmon Newell, as you say, or at least we do not find any quotation-marks in the copy before us. As the paragraph is brief we might as well quote the whole of it. This is what Mr. Newell said on the point:

> Many experiments were tried in which a large amount of super-room was furnished the colonies, both prior to the development of the swarming fever and afterward. It is unnecessary to take space for describing these experiments, as in no case did the addition of abundant super-room have any perceptible effect upon the swarming tendency.

SIFTINGS

J. E. Crane, Middlebury, Vt.

I will take off my hat any day to Anton Larson and his six honey-eaters, page 22, Jan. 1.

* * *

"Cheap, twangy stuff" is what the editor calls honey adulterated with glucose, and he is right, p. 43, Jan. 15.

* * *

Can any one tell us whether sweet clover will kill out quack-grass when sown on a turned sod of this kind of grass?

* * *

Mr. Glenwood Beard is right in his statement, p. 856, Dec. 1, that swarms from colonies infected with American foul brood do carry diseased honey with them.

* * *

My experience in making money by poultry corresponds quite closely with the ideas given by O. L. Hershiser, page 30, and I have great respect for the business ability of those who make a fair success of poultry on a somewhat extensive scale.

* * *

Dr. Miller says, page 5, Jan. 1, that most of the work of securing that bumper crop of honey in 1913, of 266 sections per hive, was done by a woman. "Did you ever?" Who shall say from this time on that bee-keeping is not a woman's business?

* * *

Mr. Byer, in speaking of Dr. Miller's last year's crop of honey, page 6, says, "Such a crop means a combination of a wonderfully good honey-flow, wonderfully good bees, and last, but not least, wonderfully good management." That is what I call a wonderfully good combination.

* * *

C. W. Dayton's experience in shipping honey by parcel post, as given on page 859, Dec. 1, would seem to show that it may be sent safely in this way. We have had no difficulty. We use corrugated paper, however, instead of wood for cover. Let us remember that the word "parcel" means "something done up," and for this purpose it should be done up securely.

* * *

It makes one's heart flutter a little to read on page 860, Dec. 1, of Mr. Gilstrap's young son getting a hundred stings at one time. It is not all of us who have whisky or brandy at hand, so I want to say that carbonate of ammonia is even better than any form of alcohol. A lump the size of a bean should be dissolved in half a glass of water, and a teaspoonful given every half hour or oftener. Ammonia is a quicker stimulant than alcoholic liquors, and, besides, it is an antidote to bee-poison.

* * *

Dr. Miller is right, p. 45, Jan. 15, in thinking bees will move eggs for the rearing of a queen. I had a case of this some thirty-five years ago. The bees built a queen-cell on a comb that I gave to a queenless colony in spring. The comb having been wintered out of a hive, and as there was no queen in the hive, they must of necessity have moved an egg to rear the queen where they did.

* * *

I received some time ago a copy of a booklet edited by A. I. Root and J. T. Calvert. It would be cheap at a dollar considering the facts it contains. Its title, "The Truth about Sweet Clover," does not appear to be in the least misleading. What is more it doesn't cost a dollar. Just write to the A. I. Root Co., and they will send you a copy for the asking.

* * *

BROOD REARING IN THE CELLAR.

That which interested me, perhaps, more than any thing else in the Jan. 1st number was the brood-rearing in one of the bee-cellars at Medina, page 33. It seems to me that we have here the germ of something of great value. If weak colonies in the fall can be so wintered as to come out strong in the spring it is a mighty improvement over having strong colonies in the fall come out weak in the spring. This account of wintering bees and winter brood-rearing reminds me of what the man said of whom I bought my first hive of bees nearly fifty years ago. He said the best way to winter bees is to leave them out of doors until late, and then take them to a cellar, when they at once commence breeding. That is just what they have done at Medina, and with just the result that he stated. They have had a season of rest, and the moving has caused them to consume or fill themselves with honey; and what could be more natural than that they should feed their queen and she begin laying freely, and that in the higher temperature the eggs should be hatched and the brood reared? But the supply of pollen, and how far this brood-rearing can be carried without the bees flying or producing disease, is something we long to know. Please, Mr. Editor, tell us more about it.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

Mr. Crane, p. 794, Nov. 15, following your reasoning, bees in a twelve-frame colony might build up faster than those in a ten by having a greater amount of stores than those in the ten-frame hive. There is no question that ample stores have much to do with rapid increase in the spring, far more than is generally supposed; but I had in mind equal conditions in this line when I made my original comment in the July 1st issue.

* * *

Some of our California beekeepers seem to think it is a waste of time for them to read of wintering bees. In reality it is one of the problems we have much to learn of—not of the extreme cold, but to know really how to handle the problems that arise from season to season that we should be able to meet intelligently and promptly. In the East I was able to tell very closely when the winter was over; but here the bees may be ahead of the season, or the season ahead of the bees. The latter is the most important we have to watch; for if the season is much in advance of the bees it means a loss of valuable time.

* * *

It began to rain Feb. 17, after three weeks of practically cloudless skies. More fell on the 18th; still more on the 19th, 20th, and 21st, by which time California began to resemble a "drowned rat," and flood conditions became grave indeed. Redlands received no mail from Los Angeles for three days; but the Los Angeles daily papers were able to reach us by auto truck. Such a storm is rarely experienced in this section, as the rainfall was little less than phenomenal, ranging from four to as high as 15 inches in various localites. The ground is soaked to a great depth, vegetation is at its best, and anybody coming in on our overland trains would be very likely to form a false conception of the beauty of our foothills by the way they look now. I have never seen a finer growth on the button sage at this time of the year than at present; but for all of our good prospects we may not be able to harvest the crop that many anticipate. The spring is unusually early, but may be late yet if the winter should be like that of 1905. Both March and April may yet be cold and backward, as was the case that year after a warm January and February. In case warm and open weather should continue, the season will arrive before the bees are ready for the harvest. However, the condition of the soil and the great amount of water stored therein will doubtless prolong the blooming season of our honey-plants to such an extent that there is almost sure to be a good harvest.

* * *

AN OPPORTUNITY AND A PREDICAMENT.

There are some opportunities ahead of us that I wish to point out at this time, even though we are likely to pass them in our eagerness to take toll as heavy as possible from a good season. There is an opportunity ahead to eradicate almost entirely black brood (European foul brood) by taking advantage of a heavy honey-flow to retard the progress of the disease while we are getting our colonies requeened with good vigorous Italian stock. If every beekeeper in the southern part of the State would make it a point to Italianize, our trouble by another season would be so limited that there would be no grave fears in any quarter. The chances are, however, that many will not do so, and the disease will linger among the careless for years to come. Those who do requeen with good resistant stock will be paid for their trouble, and at the same time will lessen the chances of the disease becoming malignant.

A predicament that we shall see to our sorrow, if the prospective good season does arrive, is that of a big supply of honey on hand among a disorganized force of beekeepers while the buyers are organized to make the best of the disorganization. That is business on their part, for they can see ahead. It is foolishness on our part, and we shall realize it when our fine sage honey drops to a figure much below what we even let ourselves dream of now. We can not blame the buyer. He is "on to his job." The entire trouble is that we have failed to form a mutual agreement by which we may hold the market of sage honey in our hands. The buyers could then go to our representative for his honey at a figure fair to both the buyer and the producer. But we are willing to let the other fellow make the market, and buy at a price fixed by himself; so if we get "stung" we shall know who is to blame for the pain. We meet together once a year, and resolve to resolve to resolve. We appoint committees to resolve further, and at the end of another year we are ready to begin anew the same old process. I wonder if we shall ever wake up. Perhaps about half of us will at a time, while the other half is sleeping.

Beekeeping in the Southwest

LOUIS SCHOLL, New Braunfels, Texas.

TEXAS HONEY PRICES, AGAIN.

Several times we have discussed honey prices and market conditions of the past season in Texas, and several letters of comment have come in. Below is one.

> I notice that you advocate that beekeepers of Texas get together and agree on a more uniform selling price of their honey. I believe this ought to be done. I can not see why we can not have quotations of prices of honey in Texas published in GLEANINGS twice a month as other sections of the country are represented in the Honey Column. It would help some. I am often at a loss to know what price to ask for my honey when the season opens up. I do not want to undersell any one, so I have to guess at about what it may be selling at.
>
> Tehuacana, Texas. T. M. JONES.

The above communication has brought on another thought—that of quoting the price of honey in the Honey Column of this journal so that the Texas beekeepers, and others too, who may be interested, can keep posted to a certain degree at least. I have recently met a number of beekeepers who told me that they found, after they had disposed of most of their honey at a certain price, that they could have obtained a little more for it if they had had some means of learning the reigning market price at that time.

Can you not arrange in some manner, Mr. Editor, to give our readers such quotations as mentioned above? I feel that this service would be highly appreciated by a large number of them. [We will see what can be done.—ED.]

* * *

THE EVIL EFFECTS OF SELLING OFF-GRADE HONEY.

There are two evils that are responsible to a marked degree for causing low honey prices. One of these is the beekeeper who does not read bee-journals nor keep posted on the market price of honey; and who, when he does have some honey to sell, simply dumps it on the market at any ridiculously low price that he may be able to obtain. The other evil is the beekeeper who puts inferior honey on the market at any low price that he may be able to get for it. Either one of these beekeepers will have a tendency to affect the entire honey market and bring down the price.

Under the first class we may place the large number of small beekeepers who own only a few colonies, and these, perhaps, in box hives. Those of this class do not care to keep up with the times; and since the amount of honey they have to sell is usually small they are not so particular about the difference in the price they obtain and that at which they ought really to sell. However, there are a great many beekeepers who have a much larger number of colonies who can be put in this same class. And the amount produced by all of them amounts to enough to cut quite a figure.

With the beekeepers who put inferior honey on the markets we can class some of our better beekeepers as well as the smaller fellows just mentioned. It has surprised me many times to find some of our well-posted beekeepers putting up honey for the market that we were sure they knew ought not to be offered for sale. It often happens, however, that many of these beekeepers must dispose of every bit of honey that they can get together in order to make ends meet. This is especially true during less favorable seasons, and it is during those years that inferior honey is more plentiful. This is not always the case, however, for we have found honey in many of the stores we had occasion to visit on our trips during the most favorable seasons that ought not to have been packed at all. Much of this was packed with fancy honey, and this made the contrast between the good and the bad so much greater. While the mixed lots of honey were a drug on the merchant's hands, good honey was in strong demand. But the chance of selling these merchants more good honey was cut off because they were stocked up and would not buy until this "stuff" was disposed of.

It makes a great difference if the merchants can get good honey and keep it moving off their hands. It gives room for other purchases, and in this manner large quantities of honey can be moved off on to the consuming masses. How different, though, if the merchants are loaded up with inferior stuff that they can not move! During the time it remains on the hands of the merchants there is little chance of moving more honey, even though it be of better quality. The result is that the market becomes more or less demoralized. The merchants hesitate about buying more honey, even after they have succeeded in disposing of the "stuff."

It is to be hoped that more attention will be paid to these most important matters. The difference of even only a fraction of a cent per pound more for our honey is to be considered seriously in this time of greater cost of production and higher cost of living, and with the honey price not keeping the same pace of advancement in price with other commodities. The margin between profit and loss is not great enough to permit of much carelessness.

Conversations with Doolittle

At Borodino, New York

THE HARD OR SUGAR MAPLE.

"Will you tell which is the first thing in the spring to give the bees a good send-off on their way to a successful gathering of surplus from the white clover? We have plenty of the hard or sugar maple about here. Is there any thing better than this?"

Any beekeper who has a spark of love for his pets is all awake for the season when the first song of the bluebird breaks forth on the air, and the musical croak or peeping of the frog in the pond is heard once more. And especially is that apiarist interested when the workers of the hive begin to bring in the first water, and when scanty loads of pollen can be seen in the pollen-baskets after a search far and near for this great incentive to brood-rearing. He knows then that active brood-rearing in such a colony has commenced. With us such activity commences with the pollen furnished by the skunk cabbage, this being found from three to ten days earlier than from any other source. Then comes pollen from the various pussy willows, and a day or two later that from the soft maple and the swamp elm. These last furnish a limited supply of nectar, or enough at least to enable the bees to pack the pollen in the pollen-baskets without carrying honey from the hive, as is done with most of the very early pollen-bearing flowers. I know of nothing more cheering to the heart of the wideawake apiarist than the bees scrambling into the hive with their loads of pinkish-hued and yellowish-green pollen from these two sources, for they forecast a successful harvest from the white clover and basswood. These flowers lay the foundation for the great army of workers needed for the gathering of the harvest in June and July.

Yet, notwithstanding this, the harvest would be meager were not these sources followed a week or two later by something which enables the bees to complete the structure that is necessary over this foundation. And this something is the bloom of the hard or sugar maple. Occasionally there is a year when a heavy freeze, or cold rainy weather cuts off the maple bloom, in which case the army of bees which are generally reared in time for the harvest do not materialize unless the apiarist is awake to his job and provides plenty of honey for each colony so that there is no disposition to retrench in brood-rearing during the time of scarcity which, under such circumstances, occurs between the soft maple and elm and the fruit bloom, the latter a week to ten days after the hard maple. Especially necessary is this maple bloom when the fruit bloom is cut off by bad weather, which is far more liable to be the case than with the maple, as there is only an occasional year when the maples fail, while a good yield from fruit bloom is the exception rather than the rule. Then the hard maple possesses a quality inherited by no other tree with which I am acquainted. It not only yields pollen the most bountifully of all trees, but gives a fairly good yield of nectar at the same time; and, coming as it does in ample time to incite the bees and queen to the greatest activity in brood-rearing, where this tree abounds the apiarist is assured of a good yield from clover and basswood unless the weather is unpropitious, or unless the bloom should fail from these two last greatest in value of all the nectar-producers here in the white-clover and basswood belts in the northern United States and southern Canada.

One reason why hard-maple bloom rarely fails of giving the bees a good chance to work on the bloom is that the bloom is held in the bud for a long time in unpropitious weather; and just as soon as the sun comes out bright and clear, and the air begins to become balmy, out will come the flower-buds, hanging from long golden threads, and often in less than 36 hours a tree which looked as though it would not bloom in weeks comes out in full bloom, looking as though each twig were a festoon of silver and gold, as bright in color as a bed of dandelions when in full bloom, and giving whole tree-tops a glorious appearance. And one of the strange things, and a fact rarely noticed except by the close observer, is that at the first blossoming stage there is scarcely a leaf put out till after the buds have mostly opened, inviting the bees to a sumptuous feast which they are on hand to enjoy from early in the morning till late at night.

In my first years of beekeeping I thought that the combs got pollen-bound from the enormous quantities of pollen stored, where good weather lasted till the wind-up of this bloom; but later I found that, before the fruit bloom put in an appearance two weeks later, this pollen was nearly if not quite all turned into brood, with which nearly every available cell in the comb was teeming. Then, besides this honey and pollen coming to the bees, there is another marvelous sweetness coming from the evaporated sap which flows in early spring from any wound that may come to the tree.

General Correspondence

SWARM PREVENTION AND SWARM CONTROL

A Definition of Principles

BY J. E. HAND

It is well known that the conditions that favor section-honey production are likewise productive of swarming; hence it behooves the producer of the most fancy product of the apiary to adopt methods and principles of swarm management. There are two separate and distinct principles involved in the operation, known as " swarm prevention " and " swarm control."

SWARM PREVENTION.

Swarm prevention, as its name implies, is supposed to prohibit swarming entirely. While many have laid claim to successful swarm prevention by manipulation, such claims have not been well sustained; because, in order to accomplish it, the colony is usually thrown so far from a normal condition as to render it practically unproductive during an ordinary clover harvest. The dequeening method is generally conceded to be the most effective in this class. It consists of rendering the colony queenless for ten days, and removing queen-cells at the beginning and end of that period. Since queenlessness is an abnormal condition that has a deleterious effect upon the working qualities of bees, little can be said in favor of swarm prevention by dequeening. There are other principles of prevention by manipulation, but they are all more or less objectionable.

SWARM CONTROL.

Swarm control is different from swarm prevention, in that it does not prohibit swarming, but governs, directs, and conducts it along lines that harmonize with the swarming habit of bees. Chiefest among methods of swarm control is the shake-swarm method. It consists of substituting the artificial for the natural swarm after queen-cells have been built. It is natural, because it satisfies the swarming impulse. It is profitable, because it places the swarm in precisely the same condition as though they had voluntarily migrated to a new domicil—a condition that ensures the best work that bees are capable of performing. It is economical, because it admits of swarm control by mechanical means, which eliminates excessive labor, such as moving heavy hives, peddling combs of brood about the apiary, etc. There are other principles of swarm control, but they are all more or less objectionable because they ignore psychic conditions of bees and its influence upon their working qualities. We may prevent a horse from running away; but if he refuses to work he is of little account, for we have lost control of him just as much as though he had run away; and the same condition will apply to bees.

SWARM CONTROL BY MECHANICAL MEANS.

While the basic principle of swarm control by mechanical means has been exploited at frequent intervals during the past quarter-century, the correct method of applying the principle as herein described is a recent invention for which a patent was granted in 1911. The equipment consists of a bottom-board wide enough to accommodate two hives side by side, said bottom-board being equipped with a simple device that is out of sight under the hives, and is capable of shifting the field force of a colony into an empty hive, or of two colonies into one hive, by turning of two switches, the ends of which protrude from an entrance on each side of said bottom-board.

Here is the method: Begin operations for swarm control by placing a hive with full sheets of foundation and a queen-excluder on the vacant side of a switch-board beside a strong colony that has queen-cells started. For convenience we will designate the colony as No. 1 and the hive as No. 2. Move levers so as to close both entrances to hive 1. which will direct all comers into hive 2 without changing the appearance or position of the entrances, which are wide open when viewed from the outside; hence bees will enter the new hive through their accustomed entrance without any hesitation. Transfer the supers to 2, and shake most of the bees off the combs of 1, letting them run into 2, making sure to get the queen also. Insert a flat conical bee-escape in the entrances back of the levers, so that no bees can leave hive 1 except through the escapes, which discharges them close to the entrances to 2, which they will enter on returning from their first flight. No. 2 will thus receive constant re-enforcements of young bees during the next three weeks; and if the harvest is of long duration it may prepare for swarming in spite of the treatment. In this case the operation is reversed, and the bees are shifted back into 1, in which conditions that favor swarming do not exist. The second shift will not be necessary in an ordinary harvest from clover and basswood. This method is positive in operation and results, and is superior to any other method of swarm control that I have tried; furthermore, it will cure an ordinary case of foul brood, while the shake-swarm method as usually practiced will have a tendency to scatter it broadcast. There are many ways in which this simple equipment may be utilized for the economical control of bees by mechanical means, but this article is limited to swarm management.

Birmingham, O.

A NEW JERSEY HONEY SPECIALIST

BY E. G. CARR

C. H. Root, of Red Bank, N. J., the only producer in the State who devotes his entire time to the business.

About 15 years ago a swarm of bees alighted near a wood-working shop of Mr. C. H. Root, at Red Bank, Monmouth Co., and then was started a beekeeping career which has been one of if not *the* most successful in New Jersey. Mr. Root is a skilled woodworker, and at the time had a number of employees, and had given such close application to business that his health had become impaired, making it necessary for him to abandon his regular work.

Having always been very active he quickly realized that idleness would not be desirable, and that some light work would be beneficial. He began to inquire into the possibilities of beekeeping as a business. He early realized the importance of avoiding costly fads and mistakes, and adopted the plan of appealing to a beekeeper in whom he had utmost confidence when any problem or new plan presented itself.

Living in a city of 8000 population, Mr. Root at once adopted the small outyard system, and has since successfully kept to this plan. He now operates about 300 colonies in eight yards, situated in all directions from Red Bank from 1½ to 8 miles distant. These are all on the premises of fruit, berry, and vegetable growers who appreciate the good services of the bees and are glad to have them there, a number of them having requested that the bees be so placed. Five of the yards are worked for extracted and three for comb honey. The comb-honey yards are successfully run on the Doolittle plan. Mr. Root finds that shaking "*a la* Doolittle," however, will not always prevent swarming, particularly if the colony has contracted the swarming fever previous to the shaking.

Eight-frame hives with Hoffman frames are used in two yards, and ten-frame hives in the others, the ten-frame size being preferred. The 4¼ square plain sections with fences are used for the comb-honey work. Only the necessary tools are kept at each yard, and the honey is hauled home for extracting, and for grading and packing.

Previous to 1913 a bicycle was used to visit the yards, and a horse and wagon to do the hauling; but this season a Ford runabout is being used with perfect satisfaction, both for visiting yards and for the hauling, Mr. Root having built what he calls the working body, which he uses, just back of the seat in place of the regular equipment. This is quickly detachable.

The entire work is done by Mr. Root alone—not only the producing but also the packing of the comb honey. The entire crop of extracted honey, with the exception of about 50 one-gallon cans, is put up in ½, 1, and 2 pound jars. The crop for 1912 was nearly ten tons.

It would be difficult to find a more particular honey-producer. All hives are put together with painted joints, and the same degree of thoroughness is characteristic of all his work. An equipped wood-working shop, and his skill and connection with the lumber trade, enable Mr. Root to make his bottom-boards, hive-stands, covers, and winter cases, and no factory-made goods could excel them. He does not think it would pay him to make hive-bodies or frames.

A summer visit to Mr. Root's yards will show an idea which appears to be original with him. The summer hive-covers are of the telescoping type, three inches deep and of half-inch material; but instead of being

One of C. H. Root's apiaries near Red Bank, N. J.

roofed with metal they are covered with canvas brought down and tacked under the bottom edge, and given three coats of paint. This is a cover that will not blow off, leak, or become hot when in the full sunlight, and does not require frequent painting.

It is a generally accepted statement that beekeepers are particularly weak on the selling end; but Mr. Root seems to have been very successful in this respect in selling through a broker who gets him 16 cts. for comb honey, f. o. b. his depot, and such a price for the extracted honey that it nets him 12 cts. after deducting all expenses for glass, labels, packing, and labor figured at a good price per hour. While Mr. Root is the only one at present in New Jersey who devotes all his time to producing and marketing honey this is no indication that this may not be done in a number of other places; but it rather goes to show the possibilities of specialization along this line in this State.

Mr. Root is ex-mayor of Red Bank, and the present president of the New Jersey Beekeepers' Association.

New Egypt, N. J.

REPORT OF NEW JERSEY CONVENTION

BY C. D. CHENEY

The 1914 meeting of the New Jersey Beekeepers' Association, held in the Entomology building at the State Experiment Station at New Brunswick, Jan. 21 and 22, may be set down as the most satisfactory meeting yet held by the association.

Several gentlemen on the program failed to appear or send a paper; but these lapses were overlooked amid the abundance of discussion in which Mr. A. C. Miller, of Providence, R. I., Mr. George M. Steele, of Philadelphia, and others took part. The matter of winter feeding was discussed in its various phases, Mr. Steele saying that his experience was most satisfactory with block sugar dumped directly on the frames and covered with table oilcloth (cloth side up), in a dry climate, or with burlap in damp situations, the idea being to secure about the right moisture to enable the bees to take the sugar without waste.

Mr. Miller described very carefully and minutely how to make Fuller candy, and pinned his faith upon it, claiming earlier brood-rearing, and no danger of getting any of it stored in the surplus. Incidentally he mentioned that his friend Latham had demonstrated that five pounds of this candy would carry a colony through without other stores. This statement, being so much at variance with the accepted standard, caused the assembled beekeepers to gasp. Mr.

Hornor had just before stated that he had fed two barrels of block sugar, giving each colony 15 to 20 pounds, and had two barrels yet to feed!

The evening session was even more interesting. Mr. Miller gave a talk on "The Dollar and Cent Side of Beekeeping," and it was very evident that his training as a banker had certainly qualified him to figure things down to one-half of one per cent, and then multiply. As usual in bee "talks," many most interesting and instructive topics were brought in and discussed, and many side-lights were thrown upon matters only indirectly related to dollars and cents. Mr. Miller stated, in reply to a question, that he had at one time a considerable number of colonies of yellow Italians, but that he "was glad to be rid of them—they are the worst of sneak thieves."

This remark caused a roar of laughter, as Mr. Miller had unwittingly trodden upon Mr. Steele's toes. Mr. Steele retorted by saying his yellow bees are not that kind. They are very gentle, and he never has any robbing. Mr. Miller said, "Put some highly colored feed in your dark-Italian hives, and in a day or so you will find it *all* in the yellow hives!"

Good-humored tilts like this made things interesting throughout the meeting, and Mr. Steele was subjected to considerable "joshing," which he met with characteristic humor and energy.

It is not possible, in a brief account like this, to do justice to the paper by Dr. Phillips, on "Two Essentials in Honey Production." Suffice to say he threw new light upon well-known methods by explaining the bearing and relation of various scientific principles. The ground was thoroughly covered and fully discussed.

Mr. C. H. Root, of Red Bank, was re-elected President, and Mr. E. G. Carr, of New Egypt, was also re-elected Secretary-Treasurer.

There was a rather small display of honey and wax, for which prizes were awarded. The "newest useful invention" presented was adjudged to be the tube bee-escape for transferring and treating foul brood without shaking. This also received a prize. Many new members were enrolled.

Hoboken, N. J.

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BEES MOVED EGGS FROM ANOTHER HIVE AND REARED A GOOD QUEEN

BY W. L. MILLER

I notice that Dr. Miller, in his Stray Straws, Jan. 15, doubts whether bees ever actually move eggs from one hive to another. I had an experience last summer that has absolutely convinced me that bees actually do steal eggs and move them to their own hive in time of need.

Last June I hived a swarm that had issued from No. 3. In hiving I saw that they had a very fine-looking queen which, of course, went in with the rest.

About a week later I had occasion to look in this hive to see if every thing was all right. I found about five completed combs nearly full of honey, and some pollen, but no eggs nor brood. All the combs were carefully looked over for the queen, but she was nowhere to be found; so, thinking that I had possibly missed her, I went on, hoping all might be well by the next time I came around.

Exactly a week later I again could find no eggs nor brood; and after shaking all the bees through a queen-excluding zinc, and finding no queen, I sent for one. A few days afterward, on again looking in, I found a lone egg. A diligent search was at once made for more, and two more were found, one in the same comb and one in another. No queen could be found. It was not the work of a laying worker, as I had been troubled with them before and could see that it was none of their work.

This was something I had never before encountered, and the developments were noted with jealous care. Queen-cells were built over all three. They were sealed. The day before they were due to hatch I accidentally destroyed one of the cells. The next day I found the two cells hatched and two large vigorous virgins on the combs. A few days later one was found dead in front of the hive. The other was in the hive, and mated. Five days later this queen began laying and kept at it all summer. I still have her to-day, and she is just as good as any I have ever bought.

This incident has made me a stanch supporter of the theory that bees do move eggs from one colony to another. I should also like to say that the Miller plan of introducing queens by the smoke method is by far the best way to introduce queens. I tried it for the first time on the very day that I received the issue of GLEANINGS containing it, and have used it every time since, and have yet to fail the first time.

Stephenson County, Ill.

DOUBLE-LENGTH SECTIONS CUT IN TWO

Furnishing the Bees a Larger Frame in which to Make Comb Honey

BY ELMER GRESSMAN

I have often had combs of honey built in frames as straight as a board, with nice white cappings, and have wished that it were only in sections, so that I might realize the price of fancy comb honey. I have tried selling the large combs at a reduced price, but with poor success.

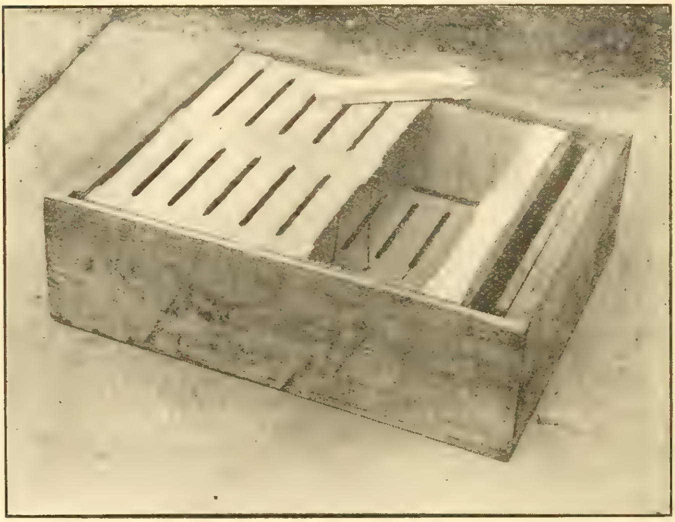
I have quite a trade in extracted honey in 5 and 10 lb. pails, but some years ago some of my customers inquired for comb honey. Most of them belonged to the class who are trying to reduce the high cost of living; and being in sympathy with their efforts I took along some nice shallow frames of honey, which I offered at a very reasonable sum, not including the weight of the frame, which I figured out, so there would be no excuse not to buy. My liberality was not appreciated, however, for almost every one said, "Oh my! those are too large. I wanted it in those little boxes."

After explaining that it was harder to produce it in little boxes, and listening to their numerous objections, I made up my mind that I was not equal to a woman in an argument, even in my own line. So I went home with part of my shallow honey a sadder but wiser man. That started me to thinking night and day. I thought that, if the combs were half as large, perhaps I could keep up my end of the argument; but I found later there was no argument needed. Never have I had a complaint about the large size of the section.

The difference in the cost of producing comb and extracted honey is getting greater every year. We see all kinds of inventions to aid in cheapening the production of extracted honey; but if one looks back he will find there has been very little done to improve on the production of comb honey. For this reason it can easily be seen why the drift has been so strong toward extracted honey.

We all know that bees will not work in sections as well as in extracting-frames, and that they are still more averse to them if the sections are divided off by separators. I think my invention will be easily understood by the aid of the illustration herewith produced. The sectional frames are made by pressing together six dovetailed pieces to make a long section which can be cut apart in the middle to make two later on. Of course the dovetails must be made so they will come right. There is a small metal stay to support the top section strip. This stay causes a depression in the surface of the comb right where it should be cut later on, and then the extra sides of the sections are pressed on, making two complete boxes of honey from one frame. These are then put in a regular shipping-case to drain for a few days. The shipping - case should have a tin tray in the bottom while draining to catch the drip, and exchanged later for a paper one.

There is very little work about the whole process, as the sectional frames can be assembled very rapidly with my press. There is no necessity of putting the sections back on the hive for the bees to finish them, as the artificial side is hardly noticeable. The stay causes a nice

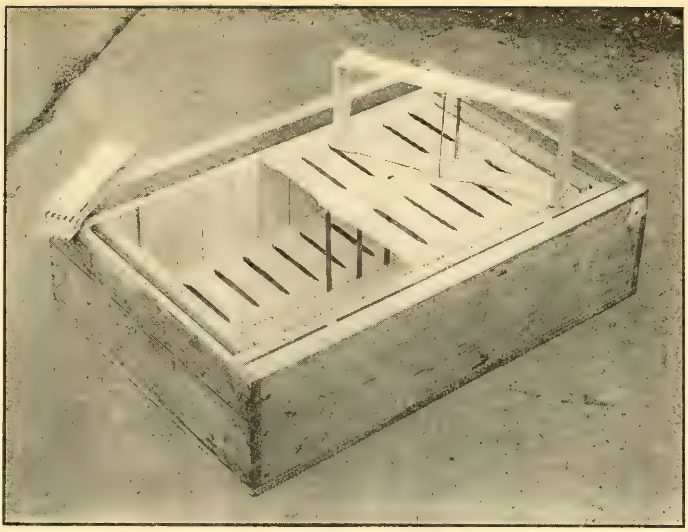


Gressman's super for producing honey in double-length sections. After the frames are full the combs are cut in two in the middle, and the frames taken apart. The fourth side of each section is then pressed on, and the section is ready for the market.

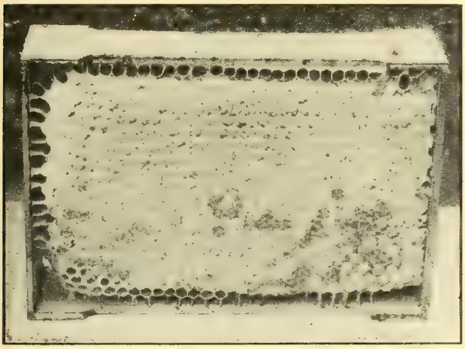
rounded edge like the natural side.

The sectional frames are used crosswise of the super with full sheets of foundation, and with the hive level from front to rear; and with fairly strong colonies straight combs will be the result. If there should be any partly filled combs during a poor season they can be extracted the same as shallow frames.

I would advise two sizes of boxes—6¾ x 5 x 1½ for local trade; a double box fitting a ten-frame super crosswise, or a 5½ x 4 x 1⅜ for eight-frame supers which can be used on a ten-frame hive if necessary, provided queen-excluding zinc is used with a wide frame margin at the sides to make it wide enough.



Double-length section-super adapted for eight-frame hives.



The finished section. Note that the right-hand side is the one that was cut.

Hamburg, N. Y.

[In our opinion the value of this plan hinges upon one point—viz., whether the bees work more readily in long shallow frames fitted with foundation than they do in small boxes like the regular-sized sections. A number of beekeepers producing comb honey in shallow frames have reported to us that it costs them practically as much to produce the honey in the shallow frames, pound for pound, as in the small sections; that the reason bees enter extracting-supers more quickly is because the combs in the latter are already built. We ourselves seriously question whether the slight advantage gained by the larger frames would make up for the greater amount of labor required in putting together the six-piece frames with the stays, cutting the combs apart, fitting in the third sides, draining, etc. We may be wrong—we have been before—and if we are we shall be glad to be corrected.—Ed.]

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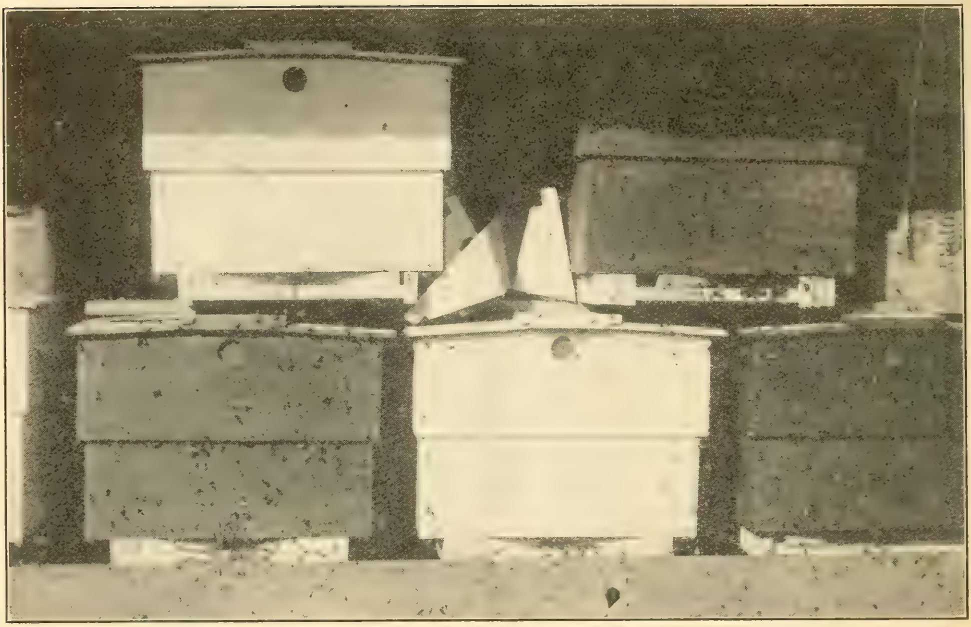
EXTRACTING FROM THE BROOD-COMBS BEFORE THE HONEY-FLOW TO GIVE THE QUEEN ROOM

BY GEORGE M. HUNTINGTON

In the production of comb honey, which is the only honey produced in this vicinity, alfalfa is the main source of nectar. I find that, if colonies are brought through the winter strong they will build up and gather new honey for brood-rearing, and there will be from one to two full frames of old honey remaining in the hive, according to the strength of the colony. The strong ones will have the most left, and will commence to store in the brood-frames so that by the time alfalfa is in bloom (or from the middle of June to July 10, which is the time two-thirds of the honey crop is gathered), the



Bees flying on a warm day in January, from colonies wintered out of doors.
Photographed by Chas. Y. Hake, York, Pa.

brood-chamber becomes clogged with honey, and crowds the queen to the lower part of three or four frames (I use ten-frame hives), so that, by the time the main flow is over, the strong colonies become weak on account of restricted space for brood, and gather little honey the rest of the season.

On the other hand the colonies which are weak at the start will consume all the old honey in brood-rearing, and do not get much of the early honey on account of not having a strong field force at that time, so that their queen does not get restricted in brood space. These colonies will become strong a little late for the beginning of the main flow, but will remain strong throughout the rest of the season, and store twice as much in supers as the former colonies do during this latter period, and they are then apt to be the strong colonies the spring following.

Would extracting two or three frames from the brood-chamber of the strong colonies a week or ten days before the main flow keep these colonies strong the rest of the season? If so, would it stop work in the comb-honey supers? If the queen occupied the extracted combs as soon as returned to the chamber (say there are three combs to extract, and that it is done one frame at a time three or four days apart, and inserted in the brood-nest between the brood, and the season is warm at that time), there will be no chilled brood. What would be the result in the supers if the bees stop work there?

As to spreading brood, it can be done here any time after May 15 in ordinary years. When I find a colony intends to swarm I brush every bee from the frames and put the frames into a new body, leaving a comb of unsealed brood, and perhaps a comb of honey on the old stand. All the sealed brood (and there will be very little unsealed brood in the new body) is placed on a new stand and queen-cells destroyed, and a new queen placed between the combs as soon as enough young bees have hatched to hold the queen from absconding. I do not lose any brood from chilling. Of course the entrance is made small until there are enough to guard it. The old queen is left with all bees, young and old, to draw out the new combs. This overcomes swarming for the season.

I have never had any spare combs at this season, so I could not put empty combs into the brood-chamber to see what the result would be. I have tried frames of full sheets of foundation, which stops work in supers until the new sheets are drawn out, and the queen prefers the old comb for her egg-laying. I could, to an extent, strengthen the weak colonies by taking hatching brood from the strong and exchanging with the weak for unsealed brood; then both queens would become honey-bound and gather but very little of the later flow. If extracting from the brood-chamber would increase the amount of brood during the period just before and while the main flow is on, the honey crop of the later flow could be doubled; and even with my small apiary the extractor would pay for itself the first season. The late honey is of a much heavier body than the main flow, and does not grade as high. The main flow is about 75 per cent No. 1; the later flow, about 75 per cent No. 2.

A strong colony produces three cases of honey which has the largest per cent of No. 1. A weak colony produces three cases mostly No. 2. A colony that keeps strong throughout the season will produce five cases averaging more than 50 per cent No. 1.

For extracting from two to three combs per season per colony in an apiary of 75 to 150 colonies, what size of extractor would you advise? The chances are that this will remain a comb-honey territory on account of the heavy body of the honey, and the extractor would be used only to relieve the brood-chamber or for extracting from combs discarded on account of drone-cells or other faults.

Bishop, Cal.

[After reading the above, one can not fail to be impressed by the fact that locality, in spite of the frequent jests whenever the name is mentioned, is an important item to be considered, for it is emphatically true that one system of management will not apply in *all* places by any means. This question of extracting before the main honey-flow is one of these problems that depend upon the locality. In our opinion there are few localities indeed where extracting before the honey-flow is necessary; but under the conditions mentioned by our correspondent it is probable that the judicious use of the extractor in giving the queen room to lay would be the wise course to pursue. If there is any regularity about the oversupply of stores before the main honey-flow, one might ask whether it would not be better to supply less stores in the fall, and so avoid the necessity of extracting in the spring. Perhaps, however, it would be risky, if not altogether impossible, to do this.

Concerning the use of the honey-extractor in the spring, no less an authority than E. W. Alexander advocated this very thing. We quote from page 28 of Alexander's "Writings on Practical Bee Culture:"

> I honestly think a moderate use of the extractor through the latter part of May and fore part of June, especially when running an apiary for comb honey, would be the means of many beekeepers securing twice as much surplus as they usually do. Here at the North, May is the month of all the year when our bees require the closest attention. It is then that we should care for them so that every inch of comb in the hive may be utilized for brood-rearing that can possibly be used for that purpose. Bring your extractor into use, cleaning your hives of nearly all capped honey, and see to it that every queen in the apiary is doing her very best to crowd the combs with brood; then you will soon have those strong colonies that will give you a fine surplus, and at the end of the season you will hardly believe it when told that the summer has been a poor one for the production of honey.

If the main honey-flow is preceded by a comparatively long period of warm weather, no doubt there would be no risk in using the extractor; but it would seem to us unwise to extract *just before* the main honey-flow, as otherwise the bees would probably have a tendency to put the new honey directly back into the same combs, and it would then be harder to get them broken of this habit than if the honey had been left there in the first place. Moreover, nothing would be gained along the line of providing more room for the queen.

We do not feel competent to cover the whole ground suggested by our correspondent, and we should like to hear from others, therefore, who may have had experience along this line.—ED.]

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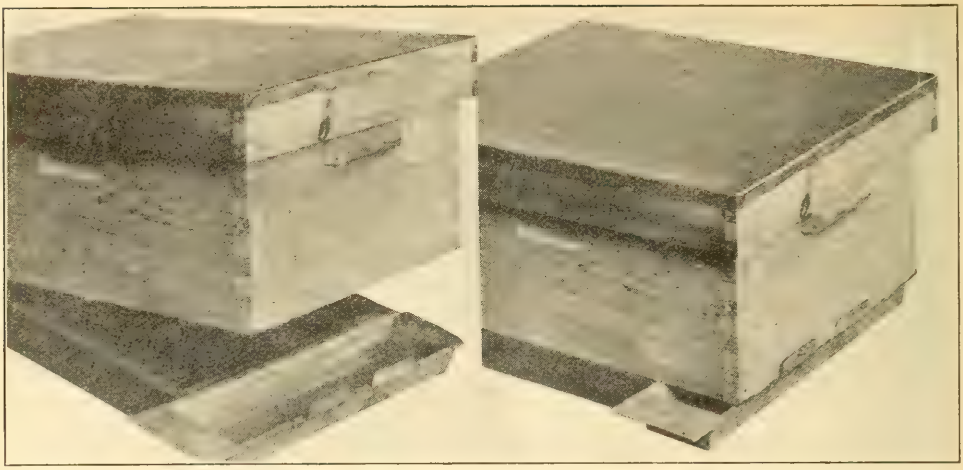
A BOTTOM-BOARD FEEDER MADE ENTIRELY OF METAL

BY JOSEPH FINSTED

The accompanying picture shows a metal bottom-board feeder which has proved more satisfactory than any other feeder I have ever used for feeding bees in cold weather. Last fall I had over 200 colonies that had to be fed from 5 to 20 lbs. each to give them ample stores for winter; but on account of other work I neglected the bees until the first part of October. Being so late in the season I had planned to feed in a wholesale way so as to be ready with the feeding before cold weather set in; but, alas! when I was ready to go on with the wholesale feeding my plans were shattered on account of cold weather that set in unexpectedly.

I tried several feeders that are now on the market, which are used over the brood-nest; but those feeders failed entirely to



Joseph Finsted's metal feeder, designed to fit under the back end of a hive like the Alexander feeder. Note that the edge of the tin on one side projects enough to rest on the end of the bottom-board, while on the other side it extends straight up, providing easy means of fastening to hive-body with a nail.

attract the bees on account of the cold, so I had to resort to some bottom-board feeder which would bring the syrup or honey in closer contact with the bees. Then, in the smaller quantities, the feed could be stored before getting cold.

I tried the Alexander feeder, but found the capacity too small, and it was also rather difficult to attach it to the hives. I then looked for a feeder that would overcome those difficulties, and at the same time be more substantial and have better lasting qualities than any wooden feeder. The feeder shown answers these requirements, and it can be used on either 8, 9, or 10 frame hives.

St. Paul, Minn.

[Mr. Finsted does not explain how the feeder can be used under hives of different widths. There are two sliding covers for each end of the feeder. (Only one is shown in the engraving.) When a narrow hive is used, both ends project, being covered by the slide. When the ten-frame is used, only one end projects and the slide on the other end may be removed if desired and not used at all.—ED.]

◆

A SUBSTITUTE FOR POLLEN IN THE HIVE

BY JAMES W. WILSEY

Last March, when I examined my bees, I was much disappointed to find that no brood-rearing was going on. It was evident that brood had been reared in the winter, and there was little pollen in the hives. There was one hive in which I was sure there would be brood as the previous year the queen had kept it full of brood early and late; but this hive had none whatever.

I then took an empty comb, and, laying it horizontally upon a table, I placed a scoopful of ordinary wheat flour on it and worked the flour back and forth with a post card until it filled all the cells. I then rubbed my fingers over the comb to pack the flour down so that it would not fall out when the frame was placed in an upright position. This frame I placed in one of the hives as far away from the cluster of bees as I could get it. I did this so that I could get at it to examine it without breaking the cluster of bees, as the weather was cold. The effect was magical. Brood-rearing on a large scale commenced at once, and many bees could be seen at work on the frame of flour. I placed similar frames of flour in my other hives with the same result, and my colonies were fully two weeks ahead of the colonies in the neighboring apiaries.

These frames of flour also kept the bees from going out for pollen on cold and windy days, as on such days my bees worked on the frames of flour while my neighbors' went out in the fields and swamps looking for pollen.

We have all seen the yellowish and brownish scales which accumulate on the floors of the hives when much brood-rearing is going on. These scaly particles the bees remove to the alighting-board. As soon as the bees begin using flour for raising brood the bottoms of the hives become covered with white scales, and the scaly particles which they remove to the alighting-board are also white.

My hives are kept in protecting cases the year around, and the bees are warm and comfortable in the blustery weather of spring.

New Paltz, N. Y.

TRANSFERRING FROM A TREE ON THANKSGIVING DAY

BY AUSTIN D. WOLFE

About 7:30 on the morning of Thanksgiving day, 1912, I looked out of the window and saw my neighbor Ashby coming out of his gate. He had an ax in one hand, a bucket in the other, and he invited me to go with him to cut a bee-tree in his pasture. I took Paul, an ax, and a smoker and veil. This seemed to promise a good appetite for the Thanksgiving dinner.

The tree proved to be a linn (Southern basswood), and fairly solid. We developed considerable sweat before it fell. While we took breathing-spells, a tall sinewy mulatto swung past us at the foot of the hill, with an ax and bucket.

"Better come along o' me, Mr. Wolfe," he called.

"Where to, Nim?"

"Oh! I'm goin' to cut the biggest bee-tree I ever see," he replied; "better come and get some."

I did not go, but remained and saw how much (or how little) Ashby got. The colony was small, the honey poor. It had not paid for the effort.

But that evening Paul brought me word from Nim that he had taken over 50 lbs. of honey, and that the bees were golden Italians. So next morning we went again, and roamed the timber pasture until the place was located. It was another big linn, lying on its side on the slope, with the evidence of yesterday in chips, bark, and old comb. In the hollow of the trunk there hung as pretty an inverted pyramid of bees as I ever saw. Right then and there I should have photographed them.

Into the frames of the jumbo hive I tied panels of comb found on the ground. Then I set the hive in the hollow of the tree and began work. At first I scooped them by handfuls and dropped them into the top of the hive. Then the smoker came into play. The bees dodged, and hid and tried to escape through hollow branches and behind dead wood, but at last learned the way to

Hive located close to an exposed cavity in the tree where the bees formerly made their home.

the hive and marched there. I worked for two hours, and then was able to record only indifferent success. Nowhere was it possible to catch sight of the queen or to gain a good indication of her location. The shadows began to lengthen under the cover of the hill, and we felt that remaining was useless, so I propped up the hive, with the entrance still in the tree, and left it for the night.

Next morning with the little girls I went to see what further developments were noticeable. There were no bees in the hollow tree, but in the hive was a cheerful humming. Listen as I might, however, there was no indication of a queen. In the early morning, under the shadow of the trees, I made some pictures, and you can see how they turned out. We then closed the entrance, tied down the cover, and carried the hive by hand to the beeyard, half a mile away.

Now the picturesque conclusion should be that the queen appeared; that, under judicious feeding, the colony thrived, and that by the following fall they had yielded a handsome surplus. Alas! not so. While I fed them the bees lived. But there was no weather warm enough to warrant sending for a queen. What the colony might have done under specially favorable conditions is a matter of speculation. Perhaps some other beekeeper will tell what *he* would have done under similar circumstances. February and March were cold, and the bees died.

Parkville, Mo.

[This experience only goes to prove that it rarely pays to transfer a colony, even from a box hive, in the late fall of the year. The transferred bees are bewildered, and their nest is not arranged according to their liking; and if there is no warm weather soon the results are likely to be any thing but satisfactory. If these goldens could have remained in the tree until spring they might have been taken at that time, and built up into a useful colony.—Ed.]

CONDITIONS OF THE "LOCALITY" IN GEORGIA

BY L. W. CROVATT

"Locality," that term used by beekeepers throughout the United States in discussions of every conceivable character, is truly blamed for many things; but in reading the articles from the pen of P. C. Chadwick, of California, dealing with the practical failure of the honey yield last season, I am struck with the changed conditions obtaining. This is certainly "locality." To the contrary of what Mr. Chadwick writes, I am constrained to say that in the year 1912, in the southern part of the State of Georgia, we had one of the most successful seasons. The yield was bounteous, and it is an undoubted fact that the natives were better repaid through the energy of their bees than in several years. It appears from reports sent by my friends through the southeastern section that the crop that season was the largest in a long while, the honey being of that transparent delicious coloring and body and flavor that demand the very best prices, and which is calculated, through its snow-white cappings and pleasing contrast to the section wood, to be an ornament to any table, no matter how fastidious.

The bees in this section, where wintering problems may be said to be negligible, built up splendidly for the spring flow (1913); and this being the case, the bees secured the full benefit from the myriads of flowers that, because of the "open character of the winter," proved to be the most profuse in many years. There was a splendid yield from the tupelo, which seems to be an early spring growth in the swamps of Georgia. The poplar is reported to have been a fine source of nectar; and in later times, when the gallberry came into flower, the bees were working like mad.

The ty-ty, another sure source of surplus, also yielded to an abnormal degree, according to those in the comparatively limited belt, and it has been my privilege to eat some of each kind. Never have I tasted a finer flavor of honey.

The natural result of the big crop is that beekeeping in Georgia, not considering the territory of Bro. Wilder, will be given a stimulus for next year. Neighbors of the successful men have taken notice of the crop this year, and optimism seems to be in the very air.

Considering the fact that we have, in this region, none of the yielding plants regarded as "staples" by brother beekeepers of the North and West—notably clover, basswood, alfalfa, etc., the results of the spring work in Georgia and parts of South Carolina are of a particularly gratifying character.

"Gallberry" may not, perhaps, sound so romantic, as suggested in the A B C; but no one can deny the fact, who has ever

Hunting the bee-tree.

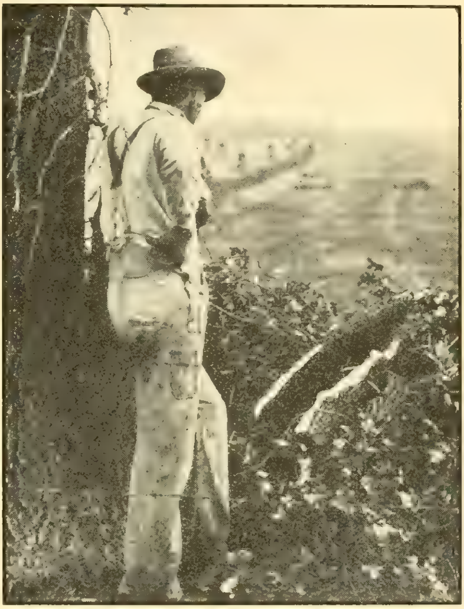
tasted the honey from this plant, that it is a superfine product which is bought with avidity by the general classes who consume honey. From the fact that at least 75 to 90 per cent of this honey is consumed in the South, however, this may explain why the gallberry and ty-ty honey are not better known in the leading markets.

Very frequently some of the big men come out in print with the statement that better values may be secured, or should be secured, for honey. The facts of the case, however, are that the average rural bee-keeper is already reaping the harvest from this source, for I find that they are now securing from 12 to 12½ cents per section at wholesale, and the demand is good at these values.

Years ago a buyer could secure all the honey needed at from 8 to 10 cents per pound; but this is now a thing of the past, for the average citizen of the country having changed over to the modern hives from the old-fashioned box, is securing surplus in splendid marketing condition.

Two young men at Meldrim, Ga., recently purchased an apiary of 75 colonies for $600. They increased to 160 colonies, and secured 12,000 pounds surplus of extracted honey. The bees were subsequently moved to Pennsylvania for a fall yield.

Another, at Ellabelle, purchased a large number of new hives for section honey. He transferred his entire yard of forty box hives to movable-comb hives; captured 22 swarms in the spring, and has secured several thousand pounds of comb honey, to the surprise and envy of his neighbors.



The trunk cut off four or five feet from the ground.

We may not have another big yield for some years; but the indications are that many people who see visions of some "easy money" will make a try for a crop next year any way. They may reap better than they know.

Savannah, Ga., June 23.

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ONE HUNDRED POUNDS OF HONEY FROM A BEE-TREE

BY J. BAKULA

I have often had the opportunity of watching a bee-tree cut at night; but on the special occasion concerning which I write, the cutting of the tree had to be accomplished on a nice warm afternoon, as we had to leave for home that same evening.

The tree was a short scrubby redoak (30 or 40 ft. tall) as often seen at the edge of a field, some twelve or fourteen inches in diameter, I judge it to be now. There were two trees growing from the same stump, so we cut it four or five feet from the ground in order to allow the saw to enter between the trees.

When we started to cut we discovered it to be merely a shell about two inches in thickness all around, the cut we made being within a few inches of the honey. Cutting away the wood was done in a short time, as large pieces could be split at a time, as it wasn't thick.

It was a shame to tear up the honey, as it was packed in there so close and nice, the combs all being separate and not built together as seen sometimes. It occupied a space of ten or twelve feet. Had the bees had more space I'm certain there would have been much more honey, as the colony was a large one, and it had been there since early in the spring. I judge there was about 100 pounds in the tree.

I shall also have to give you an idea of how I was prepared for the battle. My friend tied a mosquito-bar over my head, but failed to tie it bee-tight, allowing three bees to enter, so that I had a chance to count them. I had on gauntlet gloves with handkerchiefs tied around my wrists. As I chopped, the handkerchiefs worked off, allowing the bees to get at my wrists; but I was game. I stayed to the finish. When completed I discovered my wrists somewhat larger than usual, and I had a double chin, which prolonged my stay in the country a day longer. The next morning quite early the bees were all settled in a bunch underneath, so they were easily swept into a hive with a whisk-broom.

Section of the hollow log with one side split off, exposing bees and honey.

Dubuque, Ia.

[The fourth picture, showing some of the honey obtained, is given on the cover.—Ed.]

* * *

THE ACT OF AN OUTLAW

BY THE OUTLAW

Continued from the March 1st issue, page 177.

Adjoining the house was a garden of semi-tropical trees and shrubs. This garden was the property of certain people living several thousand miles away—heirs of an eccentric old man. During the old man's lifetime the garden had been one of his hobbies; but since his death the garden had received but little care. It was in this garden, screened from passers-by along the streets, that I placed my hive of bees.

GETTING COMBS BUILT.

As I have previously stated, I used no foundation. Not one penny in money have I spent to acquire any thing whatsoever necessary to the upbuilding of the colony. The procedure I followed was this: Three days after hiving the swarm I took all the comb built up to that time; and with the aid of a piece of twine string I tied the bits of comb into a frame. From that time on, additional frames were added as necessary, care being taken to place the new frame between two frames of unsealed brood whenever possible. From experience in making increase I have found that comb will be built faster, and will be more apt to be worker comb when the empty frame is placed in the manner just stated.

In the matter of avoiding drone comb, there is another little kink that can be practiced. That is, when drone comb is built, to make a practice of tearing it out, then reversing the frame end for end. The result is that quite often the bees think they have that drone comb yet, and build worker comb in place of the drone comb you have removed.

In order to practice successfully the foregoing, it is necessary to go through the hives two or three times a week, depending on how fast comb is being built. It might be well to state also that the practice outlined is in case comb is being built in the brood-nest. Surplus comb is a different matter. If store combs are being built it is best to let them build them as the bees see fit, or use foundation if you want worker comb.

And here, perhaps, a few remarks on the subject of wax production might not be out of the way. Some years ago this matter, aside from honey production, was quite widely discussed; and at that time, under certain conditions, I practiced wax production successfully. It was in Cuba. There, as is well known, the honey season is in the winter season during the campanilla bloom. However, the swarming season is in the summer months, from April to October, and during these months the bees transpose all the honey gathered into brood and wax —the rule being that it is almost impossible to secure any surplus honey during the summer months. As increase was not wanted, my object was to produce wax in place of bees. The method used was to have nothing but worker comb in the brood-nest, and quite often the brood-nest was contracted. In the super, every other comb was removed, care being taken to leave only worker combs. Empty frames were then placed between the combs in the super, and a queen-excluder between the super and brood-nest. The result was quite successful, the bees building drone comb in the empty frames; and as the bees desired and expected the queen to lay in the drone comb so built, they held it open, no honey being stored in the new comb. All that was necessary to complete the operation was to make the rounds of the hives every week and cut out the comb so built. This procedure quite successfully held down swarming, and converted the surplus energy of the bees into profit.

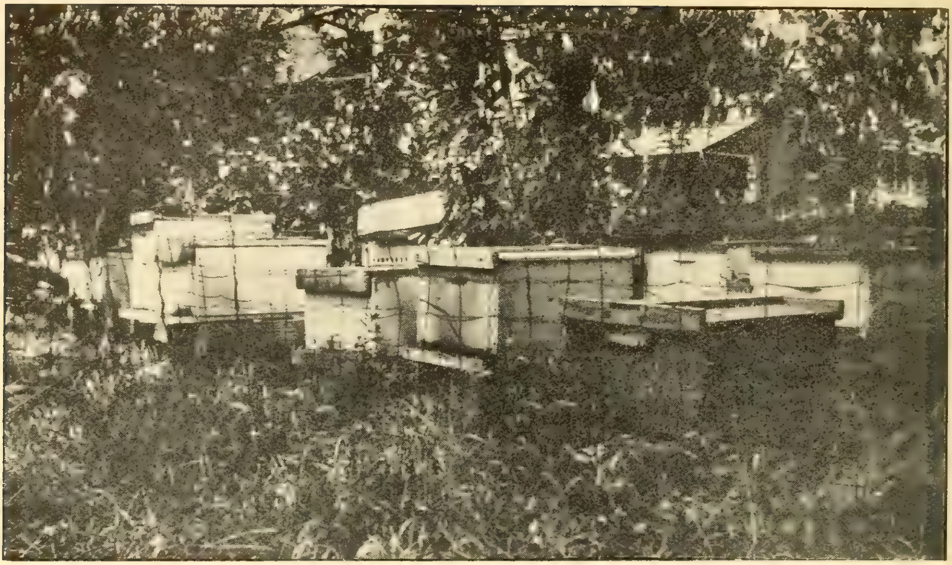
The problem here confronting me with my little swarm of bees was to build them up as strong as possible; get all the comb built that could well be done, so as to have something to work with when the real honey-flow came on in the spring. As I have previously stated, it was at the end of the honey-flow when I captured my bees. While the summer flow here is in many ways similar to the summer flow in Cuba, yet the bees have no desire to swarm. They seem to know that the winter months will bring hard times, and not a time of prosperity.

At the end of two months my colony had completed eight combs, which number filled the hive, and with the completion of the eighth comb there was another problem. To have attempted to have the bees build in the super would have been out of the question, for two reasons: First, they were not strong enough, even under normal conditions, to have allowed a sufficient cluster of bees to be formed in the super to build comb; and, second, had there been enough bees, there was not a sufficient flow of honey to induce them to build in the super.

But the bees could and would repair a breach made in a vital part of the brood-nest. So I continued as before, placing an empty frame, one at a time, between two unsealed frames of brood, the combs that were removed being placed in the super, with the result that I continued to get a frame of worker comb built every week or ten days, where, had the bees been left to their own devices, they would not have built an inch of comb.

THE ANNUAL CLEAN-UP DAY.

While matters were thus progressing smoothly within the hive, a cloud appeared on my horizon in the form of an announcement, made by the mayor of the city, to the effect that September 10 would be the annual clean-up day. Clean-up day, I might state, is an annual occurrence here. A proclamation is issued by the mayor of the city, and every householder and property owner is requested to put matters right about his premises. Briefly stated, it is a universal external housecleaning in which the entire city participates. This meant that the representatives of the heirs who owned the land where the bees were located



Seventeen colonies on a 25 foot lot in Kansas City, Kan. See article by A. T. Rodman in last issue.

would follow his usual custom of hiring two or three men for a day to prune and trim the trees and shrubs of the garden; and if the bees were allowed to remain, it meant their discovery, and the opportunity of my being a defendant in the police court, together with the confiscation, or at least banishment, of the bees from the confines of the city. In the language of Grover Cleveland, I was "confronted with a condition, not a theory," and that meant that something had to be done.

Where the true nature of a condition is understood, there is, as a rule, some way in which to meet it. While Robert Burns stated a truism when he sang—

> The best-laid plans of mice and men
> Gang aft aglee,

and uttered a thought that has been a popular saying ever since, nevertheless the only reason for the sad accident recounted by Burns was a lack of knowledge of the conditions; for had the mouse known and taken care to build its nest lower down than a plow-furrow, Burns would never have had cause for lament. For my part, I took the initiative, with the result that the proclamation of the mayor, the deed of the caretaker, and the acts of the laborers came to naught, and the bees remained within the confines of the city.

To be continued.

TENNESSEE BEEKEEPERS' ASSOCIATION, NASHVILLE, JANUARY 30

BY J. M. BUCHANAN, SEC.

A most interesting and instructive meeting of the Tennessee Beekeepers' Association was held at Nashville on Jan. 30, with perhaps the best attendance in the history of the Association. Papers and addresses on vital topics, together with lively discussions, took up the entire day.

The opening address was by the President, Mr. J. M. Davis, of Spring Hill, whose subject was "The Bee as Man's Co-worker." He gave an outline of the history of beekeeping, and showed the value of the work of the bees, both in the production of honey and wax, and in their aid in the fertilization of fruit-bloom. He pointed out the fact that the apricot is the only stone fruit that is not dependent on the bees or other insects for the proper pollination of its blossoms.

"Fancy Comb Honey in Spite of Foul Brood" was the subject of a talk by L. F. Watkins, of Nashville. Mr. Watkins told how, in addition to managing a farm of 200 acres, he had cleaned up an apiary of nearly 100 colonies badly affected with American foul brood, and at the same time had produced a good crop of fancy comb honey.

In a discussion on marketing honey a number of good points were brought out, and emphasis was given to the need of proper grading and packing, and also to the advantage of holding up the price. It was shown that it is folly to spend time and labor producing a crop of nice honey and then selling for whatever the merchant offers. There is a demand for all our product in the local markets, and at good prices.

Another discussion was in regard to controlling swarming. It seems that most of the members just "let 'em swarm," as that seems to be the easiest way to "control" swarming. It was pointed out that, in the production of comb honey, with prolonged and intermittent flows such as we have, there is no satisfactory method of prevention of swarming. It is, perhaps, as well to allow them to swarm once, and then throw the strength of the colony to the swarm. When working for extracted honey it is a much easier matter, as was stated by B. G. Davis, as the use of young queens, plenty of storage room, particularly of drawn combs, and good ventilation, would go a long way toward solving the problem.

Miss Mira Tandy, of Nashville, gave an address on "Beekeeping as a Supplemental Course in the Public Schools." She favored the organization of beekeeping clubs among the boys and girls, after the manner of the boys' corn clubs. Such clubs would create an interest in beekeeping, and she thought would help to keep the boys and girls on the farm.

Dr. J. S. Ward, State Apiary Inspector, gave a review of the inspection work for the past season. He said there was a marked improvement in the foul-brood situation in the State, and that, with proper care, the disease could be kept under control. Dr. Ward spoke of the symptoms, and gave the methods of treatment recommended for the disease. He showed that the introduction of a hardy strain of Italian stock is essential in the cure of European foul brood. As for sacbrood, he thought a change of queens all that was needed, although this had not been thoroughly tested. He said he had seen whole apiaries wiped out by sacbrood.

A paper by Porter Ward, of Elkton, Ky., was read, in which he told of producing ten thousand pounds of honey from 100 colonies, besides running a farm of 150 acres, This was bulk comb honey, and, by the way, this seems to be quite a popular way of packing honey in this State.

The following officers were elected for the ensuing year: President, T. J. Ayers, Cedar Hill; Vice-president, W. B. Romine, Pulaski; Secretary, J. M. Buchanan, Franklin. Dr. J. S. Ward and J. M. Buchanan were selected as delegates to the National convention at St. Louis.

After the convention adjourned, an hour was spent in a general social chat, which was enjoyed by all.

Franklin, Tenn., Feb. 4.

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WISCONSIN STATE BEEKEEPERS' CONVENTION

BY HARRY LATHROP

The annual meeting of the Wisconsin State Beekeepers' Association was held in the assembly chamber at the State Capitol, Feb. 3 and 4. The attendance, while none too large, was better than it has been in late years. Considering the resources of the State for beekeeping, we should have one of the strongest State associations in the Union; whereas we have hardly an average in numbers. I think the reason is, our State is so rich in other agricultural resources, especially in dairying and stock-raising, that organized beekeeping is crowded out.

At the opening of the convention, the Secretary, Gus. Dittmer, announced that our President, Jacob Hoffman, had died during the year; and Vice-president Wilcox not being present, it would be necessary to appoint a temporary president. N. E. France, State Bee Inspector, was appointed, and took the chair. He introduced, as the first and principal speaker, Rev. Father Jaeger, of Minnesota. Mr. Jaeger is at the head of the Department of Apiculture in the Minnesota State University. His topic was, "The present needs of beekeeping." "First," he said, "we should look forward to see what is the goal or object toward which we are to work." This goal, as he stated it, is the placing of beekeeping upon such a solid basis that it will yield a fair profit. He called attention to the fact that, years ago, when the farmers made and sold butter of all grades, colors, and flavors, the price was very low. Since the dairy interests have been organized, and the product made uniform and excellent, the sale has greatly increased, while the price has been getting higher all the time. The ultimate aim of the beekeeper should be the produc-

A. T. Rodman's apiary on a quarter-acre plot in Kansas City, Kan. See article in last issue.

tion and marketing of the perfect section, and then the price will follow. One great need, he said, is leaders. "Too many keep bees who are not beekeepers. We need men and women who have the time, disposition, and will to devote themselves to the occupation of beekeeping."

"Casual beekeepers will not advance the industry; real beekeepers will produce and place upon the market a good and uniform product."

"The aid of the State is also needed, and the State must be impressed that beekeeping amounts to something."

He told of the independent department of beekeeping in the University of Minnesota, and how it was secured through the legislature and *not* by the consent of the university. "Beekeeping," he said, "would bring as good returns as any other branch of industry, and the beekeepers must have the help of the legislature."

At the close of the address Mr. France stated that last year our legislature made a new law carrying an appropriation of two thousand dollars, which was secured easier than the one we got seventeen years ago carrying five hundred.

Next followed a paper on the subject, "Should a Young Man Specialize in Beekeeping?" Opinions differed on this. Some thought it best, while some advised going slow and combining beekeeping with some other business.

Mr. Allen, our delegate to the last National convention for 1913, was called on for his report, which he gave. He related mostly what has been published in the journals, but spoke in particular of the fact that he had been one who did not approve of the purchase of the *Review* by the board of directors.

I will here state frankly that the Wisconsin association, as a whole, does not seem to have confidence in the National organization. There is not a good feeling. The sentiment was freely expressed that they were dissatisfied with the change in constitution whereby the National lost its protective phase.

Some spoke of a movement to start an independent National organization having the protective distinction; and finally the convention voted to send no delegate to St. Louis. However, brethren, be not disconcerted, for this is not a case in which the tail is to wag the dog.

Prof. Saunders ("Bug" department of the University) spoke on the value of the University short course in beekeeping. Mr. France, Jr., described some of the work that had been attempted during the two seasons since the department was started. While only a start has been made, and there is a lack of means, we can see that in the future such a department can do very valuable work, such as can not be carried out by the individual beekeeper.

On the evening of the first day the members took a street car and went over to the University Agricultural Department and listened to a lecture on State inspection by N. E. France, State Inspector. This was appreciated, as was also the exhibition of materials that the department of beekeeping has gathered in one of the rooms.

One part of the program was the introduction of short talks on some new thing that each member had discovered during the past season. I will not relate any of these, because none of them proved to be new to any one except the one who gave them. Introduction of queens by the smoke method was described and discussed. It was approved by those why had tried it.

The election of officers resulted as follows: President, N. E. France; Vice-president, Frank Wilcox; Secretary, Gus. Dittmer; Treasurer, Harry Lathrop.

The writer hopes that the National convention will be a hummer, and that the Wisconsin men will come up to their annual meeting next year feeling fine, and get into line like good little boys.

Bridgeport, Wis., Feb. 9.

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MAKING INCREASE BY TAKING A FEW COMBS OF BEES FROM EACH OF THE STRONG COLONIES, AND AT THE SAME TIME PREVENT SWARMING

BY W. C. MURDIN

About every eight or ten days we look through our colonies; and if we think they are getting a little too strong in bees and brood, and do not have enough room for the queens to lay, we take one or two combs of sealed brood and the bees that are on them and put them in an empty hive. We do the same with other hives that are too strong, and when we have enough combs to fill the empty hive we give them a comb of honey and also a comb of eggs, putting this latter in the center of the hive where it will keep warm. This comb of eggs will provide young larvæ with which the bees can start queen-cells if there is no young queen to give them. In a few days' time we thus have a good strong colony.

Some will wonder whether these bees, being mixed up from so many hives, will not fight and kill each other. We made up some twenty colonies last season in this way, and we have had no trouble along this line. I like to make up these artificial colonies on a good hot day if I can, for then most of the old bees are out of the hive in the field, and there are not so many on the combs to hinder me in finding the queen. I always make sure that I do not get the queen on one of the frames of brood that I take out, of course. Most of the bees taken away are young bees, and they mix with bees from other hives easily, and also stay in the new hive without trouble, for, so far as *they* are concerned, one hive is just about as good as another. However, when the new hive is about full of bees, if I see any of them that look as though they were going to fight each other I give a few puffs of smoke, and they soon quiet down.

Some will say that it takes too long to wait until the bees can start queen-cells of their own, so, if desired, one can provide young queens, either of his own raising or some bought from a breeder, and give one to each new colony started just as though requeening.

If one has all the colonies he wishes, and does not care to increase his apiary too much, it is well not to give the bees a laying queen, but let them start queen-cells of their own. It will be some time before there is any brood from the young queen. Consequently it will be quite a while before there will be more new bees in the colony.

In about ten days after going through the old colonies the first time, go through them again and see how strong they are. If any of them show signs of starting queen-cells, showing that there is danger that they will swarm, take out a comb or two of brood and shake the bees all off back into the old hive; then put these combs of brood in the new hives that were started some days before, at the same time taking out of the new hive some of the combs that had brood in them when the colony was first started. By this time these should be empty; and if these empty combs are put back in the old colony the old queen will have more room to lay in. In this way the old queen can keep both colonies going until the new colony has a laying queen of its own. Then, too, giving the old queen plenty of room to lay in helps a good deal toward preventing swarming.

By the old way of making increase it often makes both the new and the old colony weak for a long time to come; while by the plan that I have described, of taking a comb or two of bees and brood at a time, the old colony is left in good condition for work at any time when the honey-flow comes. One can give the new colony enough

Delegates in attendance at the meeting of the National Beekeepers' Association, St. Louis, Mo., Feb. 17, 18, 19, 1914.

combs of bees and brood right along to make it just as strong as any colony in the yard. We have started new colonies this way quite early in the season, even when the weather was fairly cold. But when the nights are cold we cover the hives up until they are well protected, and we have never lost a comb of brood from chilling. We have some quick changes, too, here in Manitoba, in the spring, and some very cold windy days that are hard on the bees.

Last season none of our old colonies wanted to swarm, in spite of the very hot weather that we had. We like to keep all colonies good and strong right along, for the hives that contain lots of bees are the ones from which we get most of the honey.

Gladstone, Man., Can.

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BEEKEEPING BY A FARMER'S WIFE AMONG THE MOUNTAINS OF NORTH CAROLINA

BY MRS. J. T. REEVES

I have thought that our experience with bees might interest the readers of GLEANINGS, especially the women, as I am the "beeman" at our place. My husband is a great lover of honey, and wanted to get some bees. We tried to buy some, but failed to find any for sale, as almost every one wanted more bees than he had. Then, too, some think it is bad luck to sell bees. Finally, however, when a neighbor offered us some black bees in box hives on shares we took two stands and kept them two years. Both colonies swarmed. We lost one of the swarms, and the parent colony from which the other one had issued we lost because the bees robbed it out before it grew strong enough.

Soon after this, one of my husband's friends from the other side of the mountain said his mother had five colonies that she would sell for three dollars apiece. I thought we should not get so many at the start, as I did not expect any thing except enough honey for the table. However, my husband brought them across the mountain late in the fall, and these bees have been a constant source of surprise and delight ever since. We have made many mistakes, but I think we have profited by them—at least, enough not to make the same mistakes again.

The first season (1912) was a fine one for bees. We did not put on supers until after swarming time, and what a time we did have! We ran out of movable-comb hives and had to use all kinds of boxes. The first colony swarmed four times, and in all we had fourteen swarms. Some of these we doubled, and some we returned to the old hives so that in all we wintered just fourteen colonies. As I think of it now it seems a wonder that we got any honey at all; but the bees did most of their swarming during locust bloom, and we secured more honey than our family of seven could use. We sold some and divided with relatives and friends. This locust honey was the wonder of every one who saw it, as, indeed, all of our honey is to the people here who keep bees on the "robbing" plan. The locust honey is water-white, and has a very fine flavor. The flow from locust is a little uncertain on account of the danger of bad weather or frost, as in the case of the year 1913.

In the fall of 1912 we had to feed considerably in order to winter the bees; but we did not feed enough. The following spring was so cold that the bees nearly starved, and only six colonies gave us surplus honey during 1913. It was so cold all the spring that we did not get any locust or apple-bloom honey. On the contrary they nearly starved until the last of June when we secured two supers of fine honey from each of the best colonies. Later we were surprised to get a super of buckwheat honey from each one, but we do not like buckwheat honey.

We had no swarming during 1913. I gave the bees plenty of room; and whenever they began to hang out on the front of the hives I propped up the brood-chamber on four blocks. I am anxious to see whether this will keep them from swarming during a good year, as I want to start an outyard somewhere along the mountain. We live at the foot of the Blue, on the north side. On the south side of the mountain they have an entirely different climate with sourwood, honey-locust, and many other plants that do not grow on this side. I think our bees go to the south side for sourwood honey. Our side of the mountain is colder and higher, but, nevertheless, a good country for clover.

The honey in 1913 came too late for the beekeepers who depend merely on robbing the colonies in the fall, and we were the only ones who had any honey to sell. It was hard work dividing it, for the people were so anxious to buy. In fact, we had so much honey that the neighbors thought we fed our bees, and one man tried to feed his to get them to make surplus also; but he gave it up when the bees from the surrounding country nearly took possession of his place.

Our bees have paid for themselves several times over, and they certainly furnish plenty of entertainment. They add much interest to the life of the farmer's wife, to say nothing of the money. I have chickens, turkeys, guineas, pigs, and calves to attend to, but I prefer my bees to all of them. My friends laugh and tell me I am bee-crazy; but they show some interest at once when I tell them how much money I have made from them. Beekeeping is just as much a woman's work as taking care of chickens, and I never get too tired to hive a swarm or take off a nice super of honey.

Laurel Springs, N. C.

VALUE OF BEES FOR TRANSFERRING POLLEN TO DIFFERENT VARIETIES OF APPLES

BY J. C. M. JOHNSTON

I have received so many queries from readers of my article in GLEANINGS, May 1, p. 316, on spraying apples and pollinating the blossoms by means of bees, that I think it well to explain the matter more fully.

When apples are in bloom, bees fly from flower to flower and from tree to tree to collect the honey. Some of the pollen of the blossom clings to the bees; some of it is brushed on the next flower; some is carried to the hive for bee-bread. But the part that is transferred from flower to flower pollenizes the ovaries of the blossom, so that they begin to grow and keep on growing until they develop into an apple. Bees are thus of vast importance to the apple-grower, especially since the pollen does so much more good if it is carried to another flower instead of falling on the organs of the flower where it grew. It does more good if it is carried to a different tree instead of to a blossom on its own tree. Finally, it is still more valuable if the bee carries it to a different variety of tree from that on which it grew—say from a Northern Spy to a Baldwin or *vice versa*. For this reason modern orchards are often planted with the varieties alternating—first a row of Baldwins, then a row of Northern Spies, then a row of Greenings, and so on until the whole orchard is planted. The result is that the bees and the wind can readily carry the pollen from Greening to Spy, from Spy to Baldwin, so that each apple is pollenized by pollen from a different tree and from a different variety. Then the apples are big ger, richer, redder, more resistant to late frosts, and better keepers. Hence the orchardist wishes to keep as many bees as he can to pollenize his blossoms.

Now, how shall we regulate the spraying for codling worms so as not to kill the bees when they come to the bloom for honey, and, incidentally, to pollenize our young apples? Easily enough if we just wait until the right time for spraying. After the blossom-leaves (or petals, as they are named) fall, the nectar dries up, the stamens and other organs in the flower shrivel, the calyx opens wide, and the young apple stands erect on the stem. The bees now cease to visit the trees, and the orchard is in just the right condition to be sprayed for codling moth.

Take your gasoline-sprayer; set the pressure gauge at 200 pounds, and with a Bordeaux nozzle (not a Vermorel nozzle) shoot the spray downward into the erect end of every young apple on the tree. To do this you will have to stand on a tower on the spray-rig, or else have a gooseneck on the end of your 12 or 14 foot bamboo spray-pole, to direct the spray downward into the upright young apples. The apples are in the right condition, wide open, and upright, for about seven days after the petals fall. At the end of the seven days the blossoms begin to close up and the apples to turn downward on the stem. The poison is now within the calyx (cup), and when the worm hatches on the leaf beside the apple, and crawls into the calyx for its first meal it gets a tiny atom of the poison, dies, and goes no further. This whole range of activities — beekeeping, pollenizing, spraying, closing the blossoms, developing the apples—seems so nicely adjusted by nature in order to furnish the greatest encouragement for the beekeeping orchardist in his interesting but arduous work.

New Wilmington, Pa.

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HARVESTING SWEET-CLOVER SEED

BY F. W. LESSER

Wesley Foster asks for "a real good method of gathering sweet-clover seed," p. 8, Jan. 1. I have saved considerable seed; and while I do not know that my methods are real good, I do know that we have lost but little seed.

In 1912 we cut a patch of a couple of acres, and, it being near home, we used a grain-binder to cut it with. We cut it while the dew was on, and very little of the seed shelled off. We then put the bundles in shocks, the same as grain, and let stand till the stalks were thoroughly dried out, when we made a stack of it to await the thrashermen. We would have put it in the barn if we had had room.

In hauling we spread canvas or horse-blankets over the hayrack to catch what seed fell off. In 1913 we had four patches (about five acres in all) three miles from home, and, as it was inconvenient to take a binder that distance, we cut it with a mowing-machine. A man followed the machine with a fork, and laid it to one side in small forkfuls out of the way of the machine on the next round. It was allowed to lie in this manner about two weeks, or until the stalks were dried, and then hauled and stacked. It does not handle nearly as easily this way as it does when in bundles from the binder, and I would prefer cutting with a binder when possible.

Any thrashing-machine can thrash it, but they leave about thirty per cent of broken stalks, etc., with it, which must be removed with a fanning-mill.

In cutting small patches with a scythe we simply let it lie in small forkfuls until cured. It may need to be turned in wet weather, but it takes a lot of water to hurt it. We have tried thrashing it with a flail, etc. That way is all right for a small quantity, but we never could get all the seed; a machine gets practically all of it.

It is difficult to determine just when to cut it to get the maximum amount of seed, as some seasons there will be seed in all stages from the blossom to the ripe seed at the same time; and if we wait for all to mature, that which ripened first may have dropped off. The fully developed green seed will ripen to a certain extent on the stalk after being cut, but I do not believe the seed is as good as that which ripens before cutting.

It is a great crop, and I expect to plant nine acres the coming spring.

East Syracuse, N. Y.

A Narrow Range of Vision

Sylvia, supple and slender, and Aunt Belle, bulky and benign, had retured from a shopping tour. Each had been trying to buy a ready-made suit.

When they returned home, Sylvia was asked what success each had in their efforts to be fitted. "Well," said Sylvia, " I got along pretty well, but Aunt Belle is getting so fat that about all she can get, ready-made, is an umbrella."—*The Youth's Companion.*

Heads of Grain from Different Fields

$75 Worth of Honey the First Year

I started in the spring with 12 colonies. I got nine swarms, some my own, and some from my neighbors. I also bought nine colonies (in old hives), making a total of 30 colonies. I lost two by old queens dying, leaving 28 to winter.

Fred E. Osborne with a couple of his combs of bees.

Secured $44.12 for the comb honey sold, and $31.72 for the extracted. This is a fair average, considering some of the difficulties under which I labored.

Norwalk, Ohio. FRED E. OSBORNE.

Wires Held by Staples instead of Being Threaded Through Holes in the End-bar

During the past season I have been using ¼-inch double-pointed tacks to fasten the wires to the frames instead of threading them through the holes in the end-bars, and find it easier, requiring no special apparatus to hold, measure, or tighten the wire. The staples are also better since the wires can be drawn tighter, and they do not become slack after the foundation is put in the frames, as they always do with the usual method on account of the wires sinking into the wood.

My usual method is as follows: In a small board I drive a ten-penny nail deep enough to be firm, set my spool on this, and drive another nail far enough from the spool to allow the spool to turn freely and prevent the wire from unwinding when it is cut. Then I take a case of hives, turn it down so the hive-bodies rest on the end, and seat myself with one end of this workbench opposite my left hand; place my spool near the center, and a pile of tacks at my right, and with a good tack-hammer I am ready to begin work.

Taking a frame in my left hand, and resting the end-bar flat on the bench, I start my first tack, tie the wire in it, reverse the frame, draw enough wire from the spool to reach the other end of the frame, place second and third tacks over the wire, driving them about half way in; reverse the frame, and continue till the last tack is reached, when the wire is cut and tied. All tacks should be set parallel with the frames. Then placing the end-bar flat on the bench, all tacks are driven in till the wire is tight enough.

The only disadvantage I find is that it requires care to keep all wires in the center of the frame; and until one becomes used to the method he will likely get a few sheets of foundation slightly out of line. Occasionally driving in a tack to tighten the wire will pull the tack at the other end, but with a little practice this will seldom happen.

The advantages are that the wire is taken directly from the spool, and there is no chance for it to snarl or kink, and there are no loose ends to bother at any time. Personally I find it much easier to place the tacks over the wire than to thread the wire through the holes. The great advantage of this method is that the wires never become slack; and if the foundation is not drawn out at once after being put in, the injury is far less from buckling and warping.

BULK COMB HONEY HELPS THE SALE OF EXTRACTED

Perhaps most beekeepers would prefer producing extracted honey to any form of comb honey, but realize that the extracted not only brings a much lower price but is much harder to sell at any price. This season I have been selling on the local market bulk comb and extracted honey put up in the same style of glass packages; and while at first the bulk comb sold much more rapidly than extracted, of late the demand for extracted has been increasing in proportion, a greater number taking advantage of the difference in price. The bulk comb attracts the attention of the customers, and the price of the extracted attracts their pocketbooks.

The uniform packages, and the fact that they are put up by the same party, help to avoid suspicion that the extracted is adulterated. I believe that I have sold at least twice as much extracted honey as I could have sold had I been selling it alone, besides the larger amount of bulk comb I have sold with the same effort.

What we need for bulk comb is a wide-mouth glass jar sold at the price of the Mason. The Premium is very good, but is hard to get, and the price is too high and breakage in transit too heavy.

Oklahoma City, Okla. W. H. HOBSON.

[If one does not like the usual plan of threading wires through holes in the end-bars we should think a more rapid method would be the bent-wire-nail plan which has been suggested several times. The nails are driven in part way, bent over, forming hooks, and the wire strung back and forth.—ED.]

Heat in the Hive as a Cause for Swarming

After reading the article in your September 1st issue, p. 593, about Mr. Vernon Burt's scheme to prevent swarming, I thought that possibly the experience of an amateur with bees might be of interest; and when I say "an amateur," and inform you that I am the owner of one single colony of bees you will agree that my experience along the lines of beekeeping will not add greatly to the knowledge of your readers; but that idea of heat in the hive being one of the prime causes of swarming tallied so well with my experience of 1912 that I feel emboldened to write.

This is the third year of my actual experience with owning and caring for bees. I started with a single hive which, on the advice of the party from whom I purchased, I located in the second story of my barn, a narrow slit cut through the siding allowing the entrance or landing board to project through this slit outdoors, while the hive was on the floor of the second story close up to the inside of the siding. It was in the southwest corner of the building, and on a hot day this corner was a little hotter spot than any I ever hope to inhabit in the future. During the day my business calls me to the city (I am a suburbanite on four acres). During the season of 1911 I realized too late that my bees had swarmed, and that I had donated the swarm to a neighbor less than half a mile away. That fall I realized about 25 pounds of honey from my bees. The next year, 1912, when the hot days came I noticed that my bees would cluster around the entrance and hang in a bunch to the entrance-board until long after dark. I figured it out that the inside of the hive must be so hot that the poor bees simply followed the plan of poor human beings who live in the crowded and hot tenements of our cities—whenever possible, to sleep (or at least *stay*) out on the roofs during the nights of the heated term. And this is what I did to help out the situation.

It was a very hot Sunday afternoon. The bees were flying in numbers around the entrance and hanging to the board in bunches. I took a big pail of cold water up into the barn, and, soaking some heavy burlap bags and strips of old carpet in this cold water, I laid the ends over the top of the hive, allowing the wet bags to hang down around the sides, and sprinkled what remained in the pail over the whole thing so that it was dripping. Then I went outside, and sat in the shade to watch results. In thirty minutes the bunches of bees had dwindled fully a half, and inside of an hour had disappeared. That fall I got nearly 90 pounds from my single colony, and I did not hear any of my neighbors say that Barlow had donated another swarm of bees to anybody.

Grand Rapids, Mich. J. B. BARLOW.

Getting a Colony from a Tree without Cutting it Down

Some time ago I captured a colony of bees from a tree, following the plan given in the A B C and X Y Z of Bee Culture, introducing a queen to the bees that went into my hive. Five weeks I kept the bee-escape on the hole in the tree; then I smoked the tree well with sulphur. As the season was getting late and flowers scarce I left the tree open for the bees (now in the hive) to rob out.

In three weeks I went out, closed the hive, and brought it to town in a boy's express wagon, walking the five miles. I have a fine colony of well-marked Italian bees, and they have eight brood-frames full of honey in their hive.

I now have the two colonies up in the attic, eastern exposure, where they get the morning sun, and by afternoon the whole roof is warm. They have a direct outlet to the outside, so there are no bees in the room. There is a porch roof the whole width of the house for them to alight on, and then they can walk right into the hive.

Cleveland, Ohio. A. LYNDON HITCHCOCK.

Bees Transferred from the Wall of a House

I had quite an experience in transferring two swarms of bees from the north side of a house in October. A part of one of the swarms I succeeded in getting in a hive where I had transferred several empty combs and some brood. Some of the bees stayed on the side of the house, and I found the queen in this small cluster of bees a few days later. She had been away from the bees in the hive so long that I thought it best to smoke the bees and queen well. I then let her run into the hive, and the bees received her all right. I am not sure whether the queen went into the hive which I placed on a scaffold, for the bees were next to the roof in the second swarm. A small cluster of bees stayed under the hive, and next to the house several days, and then flew away. I am not sure that the queen is with the bees in the hive or with the few bees which flew away.

There was enough honey, which was somewhat dirty, being taken from between the siding and the plastering of the house, nine squirrel-nests being somewhat mixed in the honey. I placed this honey in a super above the bees. I suppose there was 20 lbs. on each hive. I laid the broken chunks of honey so the bees could come up into the super and get plenty of empty comb transferred to frames below. J. W. STINE, Iowa Deputy Bee Inspector.

Salem, Iowa.

Bees in a Stump in a Cornfield

While gathering corn to-day, Nov. 8, in passing by an old stump my brother happened to put his hand on top of it when the heart, about the size of a saucer, fell in. Upon looking into the cavity he found a colony of bees with stores. The stump had rotted out from the ground up nearly to the top; but the top had not given way. The bees entered the top of the stump through a small crevice. Here is the novelty of the thing: I got a saw, cut the stump off just above the ground, or about 18 inches from the top of the stump; put it on a cloth, part of it on the wagon, brought it home, and put it near my other bees. The old stump is very much decayed; but I intend to keep it as a curiosity. I have found bees in trees and logs, but these are the first I have found in a stump in a field of corn.

Kenton, Tenn. FRED TATE

The Advantage of Clipped Queens Late in the Spring

By clipping the queens late in the spring when it is safe for the bees to rear another, in case any thing goes wrong, which not infrequently happens, and by giving plenty of room, I find that not more than one-third of the hives will swarm, even when running for comb honey.

The swarms are given another hive-body with foundation, and the old hive is set to one side for two or three hours, or until next day, if desired, or long enough to allow all of the workers to fly from it and return to the new swarm. It is then carefully set upon a weaker hive for extracting purposes, with an excluder between, and no attention paid to cells. Of course there are a lot of bees in this old body that it seems should be shaken with the swarm; but those left are mostly heavy nurse bees; and now the question is, would they train down and become field bees, or remain nurse bees to the end? In the latter case they may as well remain with the old hive-body, where there is something for them to do.

Cincinnati, Ohio. JOHN E. ROEBLING.

Pollen and Honey from Grape Bloom

You say editorially, Feb. 1, that there is some difference of opinion as to whether bees pollenize the blossoms of grapevines. I wish that you could be here in May and June, and take a stroll through the woods and hear the hum of the bees and smell the delicious perfume. It would make you feel good. Our wild grapes bloom one or two weeks later than our tame, and the bloom furnishes a large amount of pollen and honey.

Concord, N. C., Feb. 9. W. D. YORK.

An Open Letter from the Secretary-Treasurer of the National Beekeepers' Association

Dear Bro. Beekeepers:—I wish to call your attention to the fact that the beekeeping industry is coming more and more into the hands of specialists who give it all (or nearly so) of their time and energy. These specialists are demanding, and with good reason, that the National Association give the practical features of the business greater attention, and leave the theoretical and educational work to the bee-journals and the special advocates in which we are so fortunate in having so many able representatives, employed and liberally paid by the different States and the general Government.

The time has now fully come for a practical, hustling, up-to-date business campaign, backed by energy and means, going in with the determination to stimulate the consumption, increase the demand, and stiffen the prices of honey, and co-operate in our purchases. This is my private view of the matter, and it is the attitude I shall assume as the Secretary of the National Association.

Other associated industries, similar to ours, are getting splendid results along these lines by combined and persistent efforts, stiffening prices and standardizing their products, and we can do the same. We may not be able to command as much money to work out our plans as some of these can do; but we shall have a big advantage in having 50,000 or more enthusiastic "bee cranks" boosting together all over the country, giving us an advantage to start with that is worth more than any amount of mere money.

We must have money, of course, and the more the better, to pay the printer, postage, and all those things, and we shall have to "dig" for it, and you will all be called on in due time to give your share.

There is one little word, none too elegant, perhaps, but wonderfully expressive, that applies to the situation to a nicety. If each and every one of us would *boost* honey, individually and collectively, in season and out, and all the time, honey prices would soar. "Boost" it locally, and then lend a hand to the larger work that is ecessary also.

It will be a pleasure for your Secretary to exchange views with you, and assist in any possible way to help matters along—act as a sort of clearing-house as it were, in the exchange of "boosting ideas."

If you do not already belong to the Association, get in as quickly as you can. I receive letters every day asking, "What are the objects and benefits of the Association?" I am going to answer that question right here, and save lots of postage. The object of the Association, in one word, is to "boost" honey and promote the business. The benefits are, a stimulated consumption and better demand for our products, and better buying facilities for our supplies. Are you with us in this?

Yours for a "boosting" campaign,

Redkey, Ind. GEORGE W. WILLIAMS.

Starting with Bees in an Attic

What is the best time in the year to start with bees? I have an exceptionally good attic. Would it be as well to keep them there the year round? It would certainly be warmer for them in winter. Would it be too hot in summer?

FRANK F. KINNEY.

Colonial Ridge, Port Chester, N. Y.

[The spring is, perhaps, the best time to start with bees, taking every thing into consideration. It rarely pays for the beginner to start in the fall, for he may lose his colonies the first winter.

There are a good many possibilities connected sive hives, and the bees are well protected in the winter. However, it is a little more inconvenient with beekeeping in an attic. You need less expen- to work with bees inside a closed room. You can not see as well unless there are large windows that you can take out entirely; the bees fly out about the room when you are looking over the combs, for instance, and are thereby lost. If the windows are entirely open they finally find their way back into the hives. See reply to M. D. Fraser, p. 196, Mar. 1.—ED.]

Nutriment for Bees in Sawdust

In your reply to Mr. Bohon, page 154, Feb. 15, you say that you do not know whether the bees are deceived by the sawdust, mistaking it for pollen. For my part I can not believe that the bees are deceived, for I have seen them going to a sawdust pile at a saw-mill close by, for the last three springs. They go by the thousands, not only for one day but for weeks at a time. I have actually caught bees on the dust pile and examined the pellets on their legs. It is of a dark-brown color; and when I tasted it, it had a mealy flavor and was just a little sweet. My bees make a practice of carrying this fine sawdust until the maple trees are about through yielding pollen, or until pollen is very plentiful. They do not begin on the sawdust, however, until their store of pollen in the combs is gone.

We know that moth larvæ can live on the wood of hives, frames, sections, etc., so it does not look unreasonable to me to suppose that bee larvæ may also use the miniature grains of sawdust in like manner.

Cushman, Ark. GEO. F. GUNTHER.

[While not wishing to take the position that the bees are really deceived, and that there is nothing nutritious in the sawdust, we should like to say, nevertheless, that it is a fact that bees carry honey from their hives in their honey-sacs to use in moistening the pollen for the purpose of packing it in their pollen-baskets. The fact that this dust on their legs tasted sweet, therefore, would not necessarily indicate that the sawdust is nutritious to the young bees.

Different animals subsist on different kinds of food. This is true also of different insects and different larvæ, so that the fact that moth larvæ burrow through wood would not prove that bee larvæ can get nutriment from sawdust. However, we admit that it is hardly likely the bees would work so long and so steadily on the sawdust if they did not find in it a nutritious substance to use instead of natural pollen.—ED.]

Pasting the Edge of the Label Only

There has lately been some difficulty in pasting small labels on tin. I have had fair success with a label about four by five inches that I use on any size of can. I use an ordinary mucilage-brush, and spread the mucilage, or paste, around the edges of the label only, leaving the center dry. Then when the paste dries, the label does not shrink off. I did not use many labels at a time last season. I tried a small bottle of mucilage first. But as that dries up rapidly in Arizona I bought a tube of library paste at a drugstore.

One of your contributors suggested the use of honey to mix with paste. I tried it with both the mucilage and the paste, and found it an improvement. I suppose it prevented the paper from drying and shrinking too quickly.

Hayden, Arizona. W. H. MCCORMICK.

Ventilating by Raising the Brood-nest and also the Cover from the Super

I have read with interest Mr. Vernon Burt's experience, p. 593, Sept. 1, in raising the brood-nest from the bottom-board to give ventilation and overcome swarming, as I have practiced the same method for several years. I have never been able to get as low a percentage of swarms, but do know that ventilating in this way goes a long way toward overcoming that difficulty. I go him one better by raising one end of the lid on the supers about ½ inch when the weather is very warm. Contrary to the usual belief, I have never had the slightest trouble in getting the bees to fill out the end or corner sections when the lid was up, and many an evening and morning I have found the bees crowded out and hanging down the side of the supers.

I had three colonies this summer having queens that were so vigorous that they went up into the supers and laid in the sections. The only way I could stop it was to raise the lower super ½ inch at one end. They were ten-frame hives too.

I have never been troubled by the bees building spur comb down to the bottom-board when using the blocks—not even with a hive where I put bricks under the brood-nest to give enough ventilation.

Philipsburg, Pa., Sept. 13. **Willis N. Zeitler.**

An Easy Way to Hive a Swarm Clustered on a Fence

In the Nov. 15th issue, page 790, the editor says, " . . but in many cases they seemed to take a particular delight in settling on one of the posts of the wire fence where it was a slow and tedious operation to get them." I would rather remove two swarms from posts than one from a bush. At the beginning of the swarming season, take some old pieces of rope and wind around the posts about three feet from the ground. Pour some melted beeswax on this rope. (Old comb is better, but may spread disease). I use a light skeleton stand about 2½ feet high to set a hive on; and when a swarm settles on a post I place an empty hive on the stand and carry it to the post. To be successful the bottom-board must come in contact with the post. Scrape a handful of bees on to the bottom-board, and the rest will soon follow. Or, give the post a sharp blow with an ax. A man may then return to his work, and in nine cases out of ten the swarm will enter the hive in a few minutes. It requires only two or three minutes to place the hive, and it saves time and stings.

If I could have my choice in hiving swarms I would surely take the fence-post.

Pinckney, Mich., Feb. 6. **N. P. Mortenson.**

To Make Increase and Prevent Swarming

The following I find a handy way to make increase, and also to prevent swarming, and get two strong colonies in place of one.

In the swarming season, in the home or outyards I go to colonies that are strong, find the queen and place her and all of the combs with brood and eggs, but one, in an extra super.

Then I take the one frame with brood and eggs, and place it in the old brood-nest; fill it with combs, put in a queen-excluder, set the super with the queen and brood on top. Put in a honey-board; also some warm covering; cover, and let it alone for 12 to 14 days. Then I look for queen-cells; cut them out, and put them into nursery cages, all but two, and then wait until I think they ought to be hatched out. If the two I left are hatched, or show signs of one being hatched and the other destroyed, I again put back the upper super and let it alone for about two weeks.

Then I look for the old queen in the upper super; and if I find her all right I look for eggs and brood in the old brood-nest; and if I find them I set the old queen on to a new stand, and have two good colonies, and always get some surplus and no swarming.

If I do not care for increase I take a frame from my best queen and put it into the brood-nest, and then proceed as described, with the exception of destroying the old queen and letting the super stay on the old brood-nest.

Vernon, Ct. **J. G. French.**

[Your plan is similar to the Alexander plan for making increase in that you conserve the heat of both lots of bees, and thus save all the brood. However, Mr. Alexander gets the old queen in the new hive below on the old stand.—Ed.]

1913 Freeze Killed Half the Sage

The indications are good for sage honey but for the freeze of last winter, leaving only half a stand of sage. What there is will probably be good.

Redlands, Cal., Feb. 1. **E. D. Bullock.**

Feeding Candy in the Ozarks

We are having a warm winter after a very dry summer. Bees in this vicinity went into winter light in stores. I am wintering out of doors in eight-frame dovetailed hives, situated on southern slope, feeding hard candy. Bees are doing well. The prospect for clover is very poor at present.

Morrisville, Mo., Feb. 18. **H. Clay Day.**

Cellar Breeding Not Desired

You call for reports in regard to supplying the bees with artificial pollen so they will breed up in the cellar. The scheme may be feasible, but I should not want to see my bees breed up to such an extent that they get the swarming fever while in their winter repositories.

Mancelona, Mich., Feb. 23. **S. D. Chapman.**

Aster Honey for Winter Stores all Right so Far

I reported in the fall that my bees had nothing but aster honey to winter on this winter. They had a fine flight yesterday, the 22d, and I never saw a healthier lot of bees. There were but very few dead ones. We have another snowfall this morning—very cold. **R. Thompson.**

Underwood, Ind., Feb. 23.

Cottonseed Meal a Good Substitute for Pollen

Replying to your editorial, page 121, Feb. 15, I have found cottonseed meal a fine substitute for pollen. If the weather is inclement I put it in an empty comb which I insert in the hive at one side of the brood-nest. If the bees can fly, I put it outside in some place where rain will not fall on it. I put it in a box and place a hive-cover over it, so arranged that the bees can have free access to it.

Mathis, Texas, Feb. 27. **H. D. Murry.**

Sweet Clover Easily Grown in Florida

We have continued planting sweet-clover seed (a few rows in our garden) and it never fails to grow. This is a small effort, yet under some conditions larger quantities could be grown. It grows well here upon saw-palmetto or flat-woods land. We have grown it from seed. We transplanted it, and at this writing it can be found growing spontaneously.

Taft, Fla., Jan. 30. **T. A. Worley**

Variations in the Same Kind of Honey

I have kept bees in two places. At the first the honey from persimmons was very light in color, with a peculiar flavor which was noticeable as soon as persimmons began to bloom. At the second location, not more than seven or eight miles distant in a beeline, but in a very different soil, there is none of this honey, although the bees work freely on persimmon.

Arcola, N. C. **R. B. Hunter.**

Our Homes

A. I. Root

And in the morning, rising up a great while before day, he went out, and departed into a solitary place, and there prayed.—MARK 1:35.

But thou, when thou prayest, enter into thy closet, and when thou hast shut thy door pray to thy Father which seeth in secret; and thy Father which seeth in secret shall reward thee openly.—MATT. 6:6.

There are a good many strange people in this world. There are good people and bad people; and there are others, like you and me, who are good part of the time and bad part of the time; and may God grant, as we grow in years, that the bad times may grow less and less, and the good times grow more and more frequent. Well, there are *selfish* people in this world, and, thank God, there are unselfish people. Why, it is a positive fact that there are people who send out gospel literature day after day and year after year, and pay the postage and printing entirely out of their own pocket unless some good man or woman sends a postage stamp or may be a dollar bill. I have known of quite a few such.* In fact, there have been one or two among our beekeepers who have spent a large amount of money, not to send out *political* literature, but to disseminate the pure gospel of Christ Jesus, and that, too, without money and without price. I think one of them is dead and gone.† But there is one who is still alive and doing business, and I rather think he is doing a lot of business too. Every little while he sends me some tracts. I glance over them hastily, and sometimes hand them to those who I think will value them.

Just a few days ago, among these leaflets was one entitled "In the Desert with God," which attracted my attention. This tract also contained a poem headed "Alone with God." I tried to find it afterward, but it had slipped away. But the thought kept coming into my mind and repeating itself—yes, in the night I would say, "Alone with God," and it recalls to me that, during my busy business life, times would come quite often when I felt as if I *must* be just a little while alone with God. Perplexities, misunderstandings, and disappointments must come in a great and growing business, and I can remember vividly that, when my feeble efforts seemed to fail, when some of the help got cross or "cranky," as we sometimes term it, at such times I longed to get entirely away and be alone with God. I sometimes thought of having a private office where I could get off by myself and turn the key. But somehow that did not seem to be Christianlike. I do not know that I have ever yet refused to see or talk with any one. I have often, however, asked the friends after a time to excuse me; but I do not think I ever locked myself in a room, even when I wanted to pray. After the busy throng had all gone home there were particular places or corners where I used to kneel down and feel that I *was* alone with God. I could tell him all my troubles, and a lot of deliverances—I think I may safely say *miraculous* deliverances—came after such times when I had been alone with God.

I do not know how many of you there are who sometimes get stirred up so that it seems almost impossible to take your thoughts away from the thing that troubles you, and think of something else. I sometimes, after a rebellious conflict in my soul, feel like an unmanageable horse. I remember one such time when I was almost boiling over with resentment, and I could *not* get over it. I left my work and plunged into a field of growing corn. I went away out into the middle of the field and knelt down alone with God. I said in substance, "Create in me a clean heart, O God, and renew a right spirit within me." I then went back to my work, as the good book expresses it, "clothed, and in my right mind." I was then enabled, by the grace of God, to look pleasantly and kindly on contrary humanity. Now, such a spirit is catching. No wonder my help *forgot* to be contrary, and seemed to be *transformed,* like myself. This being alone with God had banished Satan, and Christ Jesus was lord and ruler once more.

Well, this little tract reminds me that I have not been alone with God of late as much as I used to be. Let me stop right here. It is an excellent thing to be able to lead in prayer-meeting or other places when you are called on. We should always be ready to "say grace," or give thanks, whenever we are called on to do so, *wherever* we happen to be. This praying in public is good and commendable; but I venture to say that every one of us, when so called on, considers what effect his words will have on his *hearers* as well as on the great Father above. In other words, I think most of us are tempted to pray to the people as well as to the great Father who hears and answers prayer. Now, here is the point:

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* If I mistake not, our departed friend and beekeeper Oliver Foster was one of these quiet home missionaries. If you will refer to page 373, June 1, you will see that he was also one of the most successful beekeepers, years ago, when he and myself were in pretty close touch, not only with the bees, but when we were *both* interested in the furthering of God's kingdom.

† Among other good friends who are doing so much to further the cause of righteousness I must mention also the Gospel Tract Mission, of Woodburn, Oregon. They send out an elegant calendar with choice selections that face the reader for at least a month. This is a very practical way of combining the practical and spiritual. Besides this they send out large bunches of blotting-pads with scripture texts that remind us almost unconsciously of better things. Drop them a card.

If you get off by yourself (away off in a cornfield), there is no listener *but* God. The conference is between you and your Maker. A man would be silly indeed if he thought he could deceive the all-seeing Eye. If he is never honest and sincere anywhere else he surely must be (unless he is a fool) honest when he is alone with God.

I told you I had *lost* that poem, so I decided to write for another. Inasmuch as our good friend had sent me *one,* and paid the postage, I decided I would send him a stamp. Then something said, *"Two stamps;"* but the *Holy Spirit* (I think it was the Holy Spirit) said I should send him a dollar to help pay the postage on some tracts to other people. The tract came right along, and a letter with it; but before I give you the letter I am going to give you the first paragraph of that tract that has taken such a hold of me, and the four stanzas of the poem.

IN THE DESERT WITH GOD.

In these days of hurry and bustle we find ourselves face to face with a terrible danger; and it is this—no time to be alone with God. The world in these last days is running fast; we live in what is called "the age of progress," and "you know we must keep pace with the times." So the world says. But this spirit of the world has not confined itself to the world. It is, alas! to be found among the saints of God. And what is the result? The result is—no *time* to be alone with God; and this is immediately followed by no inclination to be alone with God. And what next? Surely the question does not need an answer. Can there be any condition more deplorable than the condition of a child of God who has no inclination to be alone with his Father?

ALONE WITH GOD.

Alone with him, make him thy confidant;
Tell him each wish thou fain would'st have him grant:
Oh! tell him every thing that's in thy heart,
Give him the key to every secret part.

Hast thou one thing thou would'st not have him see,
Hidden from him who gave himself for thee?
Hide it no longer, let it all come out
Free in his presence *then* without a doubt.

Trust him with every thing thy heart holds dear;
Trust him with every thing of value here;
Believe him; he will keep it safe and sound;
He loves each lamb his tender grace has found.

Alone with him he loves to have thee be,
Whispering softly that he cares for thee;
Here in his presence dost thou love to dwell,
Learning of him what he delights to tell?

I hope, dear friends, you are sufficiently impressed with the above to want to send for it; and I will tell you where to send by giving you the following letter containing *another* precious poem:

My dear Brother Root:—Your letter of the 18th, with one of the Lord's dollars, came safely to hand, for which we thank you. We sent at once the tract "Alone with God," which you desired. We are glad to have you use any of our tracts in your Home talks as you have in the past, and which has brought many calls for the same. A word from you goes a good way in this.

I am quoting for you now some most precious verses for your spiritual meditation.

Not now, but hereafter.—JOHN 13:7.

Not now, but hereafter shall all things be known,
And all of God's wonderful workings be shown;
All mysteries will fade in the light of that land,
All doubts will be settled, and we understand
Why ill was permitted, why God's ways seem slow,
And the path was so rough that our feet had to go.

Not now, but hereafter all things will be plain,
The sweet and the bitter, the loss and the gain;
In the light of his presence we clearly will trace
What now seems so wrong was but infinite grace;
And how all things here were but working for good;
God's beautiful plan but not now understood.

Not now, but hereafter, when we are like him,
And the scales have been taken from eyes now so dim;
When we view all our journey and scan all our way,
With praise, adoration, and wonder we'll say,
"I see and I know, and I thank him for all,
My precious Redeemer at whose feet I fall."

Swengel, Pa., Oct. 21. A. F. COWLES.

In regard to the last poem, had I received it in time it would have been a most fitting closing-up for my Home paper for Nov. 1; and I hope my old schoolmate Corwin may see it.

AN OUT-OF-DOORS RELIGION.

We clip the following from *Guide to Nature:*

Christianity is an out-of-doors religion. From the birth in the grotto at Bethlehem (where Joseph and Mary took refuge because there was no room for them in the inn) to the crowning death on the hill of Calvary outside the city wall, all of its important events took place out-of-doors. Except the discourse in the upper chamber at Jerusalem, all of its great words, from the sermon on the mount to the last commission to the disciples, were spoken in the open air. How shall we understand it unless we carry it under the free sky and interpret it in the companionship of nature?—HENRY VAN DYKE, in "Out-of-Doors in the Holy Land."

Not only is Christianity an outdoor religion, but it is an out-into-the-open religion, everywhere and every day in the year. The gospel of Jesus Christ has no secrets. It is all above board, and out in the sunlight. I was once invited to a seance where they had a slate-writing in a tent. They said I would have to stay until midnight to see the modern miracle. I replied, "Why, my good friend, why not hang your slate right outside of the tent at noon, where the sun can shine on it?" They said it would not *work(?)* that way. Well, any thing that will not work and stand the full light of day is a good thing to avoid. The great Master said, "In secret have I done nothing."

Poultry Department

MY "SETTING HEN" STORY, ETC.

In our issue for Jan. 1 I told you something about my flock of about 50 pullets, a cross between the Leghorn and Buttercups; and I have before mentioned that this cross gave us birds of all colors imaginable. Well, the *colors* are not all of it. There are two or three hens in the lot with feathers turned inside out—the curve being outward instead of inward, and, in fact, I don't need "leg-bands," for there are almost no two hens at all alike in the whole 50. And even *this* isn't all of the result of such a cross. Both Leghorns and Buttercups are non sitters; but when I got here, about Nov. 8, I found two hens that were just determined to sit. In order to get roosters big enough to sell in our market (they won't buy them *here* unless they are close to 3 lbs.), I decided to let both sit as soon as I could get eggs enough. How long did it take to get 15 eggs? *Just four days;* so one hen was set Nov. 12, and before we could spare 15 for the other it was Nov. 17. I tell you this to let you see how my egg yield started in November with pullets, some of them nearly a year old. The 30 eggs, when tested on the third day, were all fertile but one, and the two hens gave me 29 good strong chicks. At this date, Feb. 12, both have weaned their chicks—one 14 and the other 13. Just a word about this excellent fertility.

I have had a notion that the male serves only *the laying hens*—that is, where there are plenty of hens. We have two young roosters with the 50, and one four-year-old full-blood Buttercup, male. I have searched poultry journals and books, but have never seen the matter treated of; but you have all doubtless noticed that, as soon as a hen comes off the nest cackling, there is a rivalry among the males as to who will serve her first. Is this one reason for the cackling? If I am right, it is not at all strange that my eggs in November were almost all fertile. Later I gave one of the Rhode Island Red hens 20 eggs, and she hatched 19 chicks.

Let us now go back to the two sitting hens. Both of their ancestors were non-sitters; and when they did *occasionally* act like sitting, taking away the nest eggs usually cured them. Not so here. I have seen hens *determined* to sit before, but none like one of these. Another hen had been laying in the nest, so I made a pencil-mark around each egg, and planned to remove all eggs that might be laid in with them. She bit and scratched my hands so badly I bought a cheap pair of cotton gloves; but when my hands were covered she flew in my face and made me look as if *I* (*A. I. Root*) had been in a *fight*, so I dropped her in a box right under the nest and put my foot over it until I could see if all her eggs were pencil-marked. This did all right for a few times, until, instead of going on the nest when released, she flew in my face again. To head her off, as soon as I removed my foot I slipped out of the nearby barn door and closed it after me. This worked all right for a few days; but she soon demonstrated that a determined young sitting hen is quicker on a run than her 74-year-old "boss." She would slip out of the door before I could get out and close it; and then *chased me half way to the house.** Was there some *game* blood in the ancestry of the Buttercup or Leghorn that cropped out when I crossed the two? She made a most excellent mother. No cat or dog even *looked* toward her chicks the second time. She and I became excellent friends when we "understood" each other. Let me mention just one more "sport" of these cross-breds.

Some of them have great drooping red combs hiding one eye, like the Spanish and Minorcas; others have Buttercup comb, and still others no comb at all. There is one jet-black pullet, with no comb at all, that has a nest in a square can, "all her own," that has laid *almost* every day since she commenced in November, and she has the most fascinating musical cackle I ever heard. It gives me a "thrill" every time I hear it. It says to *me*, "Rejoice and be glad," exactly as Pollyanna puts it.

This winter I haven't bought a pound of "chick feed." It costs too much, and there is always a lot of stuff in it the chicks won't eat. I give them "bread and milk" until they are old enough to eat wheat. There is no waste with bread and milk, and I think they grow faster than on any other diet, and this reminds me I want to say a few words more about that divergent poultry ranch. Just recall to mind the granary and feed-house is in the center. Four double houses surround the granary, and every flock has a yard running out like the spokes of a wheel. Now, four houses and yards are enough for 50 hens, so there are four more vacant until the chicks begin to hatch, then every hen with her brood has a house (really half a house) all to herself. No big chickens get at their bread and milk; and as they grow she can take them further and further every day out among the palmettos and other underbrush. If a storm comes up she is pretty sure to make for the central shelter. All feeding and egg-gathering, as a rule, is in this central group of houses.

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* She didn't go "on foot" when she chased me either—not much!

After they had all got located (a rooster with his dozen hens to each yard) I tried opening the gates and letting the adult fowls all run together on Stoddard's colony plan, and it works nicely. At night they all go to their own roosts, and each flock goes away off in its own yard except when they come home for feed and water, and to lay. It is true a *few* hens have stolen nests out in the underbrush; but Wesley so far has "spotted" them very soon by their cackle, and brought in the eggs for *home* use.

Well, when each hen with her brood has a big yard all to herself she finds quite a lot of bugs and worms, to say nothing of green stuff for her brood. If she *knows* where to get wheat and water every hour in the day she almost cares for herself and brood. Each hen and chicks has a big head of lettuce every morning, and the grown-ups have a heaping bushel in the wire-cloth basket I have described.

I told you that, when we arrived here in November, I got only four or five eggs a day. Well, with all I could do the flock came up very gradually; but now we get close to three dozen every day. Until Feb. 1 we had 40 cts. a dozen; but all at once it seemed "everybody's hens" began to lay, and the price dropped to 25 cts. in about one week.

THE INDIAN RUNNER DUCKS.

Early in November we got one day 17 eggs from 24 ducks; but through December and January they didn't average a dozen, and one or two days only three or four eggs. This is so different from former winters I hardly know how to account for it unless it is true with ducks, as with hens, that small flocks *always* lay better than large numbers. Still, 25 should not be called a large flock.* I gave them mustard liberally from that barrel I told you about, but it does not seem to work with ducks (at least not *this* winter) as it does with hens. We feed ground bones and meat scraps two or three times a week to all, big and little. Next to this they all seem more fond of lettuce than any thing else, and we are now growing lettuce just for the fowls. It does finely on ground that has once been a "chicken yard," and I believe the chickens' heads are "level" on lettuce. It is *God's* medicine and food, both together, and good for *people* as well as chickens.

FLORIDA PESTS; CASSAVA, ETC.

I have been reading this journal for 21 years, and my sympathy is all with Mrs. Root in her efforts to curb your fervor in description of "discoveries" and in following you in your wayward career through life and into the wilds of the west coast of Florida, where I can easily believe the trials imposed by insect pests, if not warded off properly, will induce the same results as they do on this east coast: viz., profanity, disgust, and strong drink. However, if a person will consider the matter calmly, and study the ways of the pests, it is possible to beat them at their own game of torment. For sand flies and mosquitoes, use a bee-smoker. Rotten heart pine is the best fuel. A rotten railroad tie is the stuff. For roaches (common palmetto roach) *Palma tosilpha Floridiana*, I make traps of tumblers baited with honey. Just grease the inside of the glass. A strip of paper is pasted to the outside from bottom to top, and then put in a dark place, and left alone until it needs to be cleaned and rebaited.

Whitewash with common lime all dark places that are their harbors, and let spiders, lizards, chameleons, and harmless snakes have the privilege of pursuing their prey in and about the premises, and *kill all you see.*

Poison is dangerous, and not necessary. I can draw on 27 years and 10 months of life spent in southern Florida for experience to prove my theories. I am 54 years of age, a native of New Jersey, and Jack at many trades. I am not much of a gardener, growing some things only for my own use and learning the reason why they have failed in the past to produce any vegetables for home use, except by lucky accidental planting; however, it is *not* by lucky accidents that I can dig *20* and *30 lbs.* of sweet potatoes from one hill and runners, or gather *150 to 250* pods of okra from a single plant. It is soil, season, and knowing how, supplemented by sub-irrigation that naturally is found in low lands bordering rivers and lakes.

If you care to try out my variety of sweet potato I will send you seed and cuttings at any time.

As to the dasheen, I wish to compare it with the sweet potato in quality and quantity.

About your cassava, you will find the roots under ten inches, when grated as horseradish is grated for use, and then made into pudding as rice is used, have something *more* than "chicken feed" in them. The Bahama negroes use it as a staple article of food.

Grant, Fla., Jan. 30. L. K. SMITH.

In regard to cassava there are many inquiries as to where cuttings can be procured, as I do not find them advertised anywhere. If some Florida friends will undertake to furnish canes for planting, say by parcel post, I will give their names free of charge. We are now getting "rooted cuttings" in a bed in the garden, to be put in the field later, so as to have a perfect stand.

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* *Later.*—It is now March 3, and the ducks have been doing very well all this February; but duck eggs brought only 20 cts., while hens' eggs were 25 cts.

High-pressure Gardening

ANOTHER OF GOD'S GIFTS FROM SOUTH AFRICA —THE SESAME.

Mr. A. I. Root:—As you say that you would like to try some of our sesame, as prepared by our natives, and which we use a good deal, I am sending a small sample of the same. We took some home when we went on furlough three years ago, and it kept all right except that it lost some of its flavor and fragrance, perhaps. I inclose a few of the seeds as they appear after the hulls have been rubbed off, but before they are crushed. The process as the natives prepare the seed is, first, to moisten the seed with water (preferably hot), then rub between the hands until the hull is removed. Then the seeds are slightly roasted in a pan or piece of broken pot. This is the most delicate part of the operation—not to burn them or roast them unevenly. Then they pound them in a wooden mortar to reduce them to meal.

We use this meal on our porridge, oftentimes, with any other dressing, or alone, according to taste. I think it goes especially well with honey.

Referring to our amadumbe as compared with the dasheen, it would seem to me that those who write concerning the dasheen emphasize the need of wet ground more than would seem necessary in case of the amadumbe. While they bear and need a fair amount of water they are often raised with success, and yield an abundant crop, on high ground, such as would be quite suitable for Irish potatoes.

W. L. Thompson, M. D.

Mount Silinda, Melsetter, S. Rhodesia, Dec. 6.

The sample of sesame meal came to hand; and if Mrs. Root had not forbidden I should be very much inclined to say "It is the most delicate, delicious, and nourishing food I ever tasted." Peanut butter comes nearest to it; but there is a delightful "fragrance" about it, as friend T. intimates, that is unique. May God be praised for sesame as well as dasheen. I have carefully planted the seeds sent; and if they *grow* you may expect *another* "stir" from these parts in regard to "the high cost of living." Our Department of Agriculture had better send our good friend Prof. Young to look it up and have it tried at our Brooksville sub-station.

SWEET CLOVER—THE SOIL-MAKER.

From *The Ohio Farmer.*

It was springtime in the late nineties when a stranger rode along the winding highways of Kentucky. The blossoms had fallen from the fruit-trees, and the leaves on the forest giants were taking on the deeper green of approaching maturity. The sunshine was soft and warm, and the very air seemed to breathe life and vigor. The stranger's companion —a native of that region—seemed to be the only thing out of harmony that wonderful April day. His face was sad and the wrinkles of care were not hard to discern. Sorrowfully he pointed to the barren gullied hillsides and said, "This was once a portion of the famous Blue Grass country; but the soil is getting poorer and poorer, for the rains are gradually washing the fertility into the valleys." For a moment he paused; and then, stretching his arm toward the green plants which lined either side of the road, he continued, "Aside from the trees, about the only thing that'll grow up here is this weed!" The stranger looked intently at the growing plants; then, springing from the buggy, he grasped a bunch in his hand and exclaimed, "Man alive! this is not a weed, it's sweet clover; and to these limestone hills sweet clover means a rebirth of virgin soil!" To-day those hills are no longer eroded and barren, for great fields of this legume are to be seen everywhere; and, moreover, the blue grass is again being established in the wake of the sweet clover.

When the plant is young it is difficult to distinguish from alfalfa; and, in fact, it is a sort of half-brother to alfalfa, for the bacteria on its roots are of the same species as found on the alfalfa roots, and they perform the same function of gathering nitrogen from the air to enrich the soil.

Naturally the question is asked, "If this is true, why not grow alfalfa instead of sweet clover? Alfalfa makes better hay and pasture. It will last for a number of years, and its roots contain more nitrogen. What is the advantage of sweet clover over alfalfa?" The answer is apparent when it is stated that sweet clover will grow on poor worn-out soils on which it would be impossible to establish any other of the clover family. Its seeds thrive on soils of the hardest type where other plant seeds would fail to germinate. It will make a most wonderful growth on soils totally deficient in nitrogen if limestone, phosphorus, and inoculation are present. On a soil of this type, sweet clover will add an enormous supply of nitrogen, for it depends wholly on its supply of this element from the air. It is also an excellent crop when used to pave the way for alfalfa, because, as mentioned before, it carries the same bacteria on its roots.

If one choose a field with a water-table too high for alfalfa or too poor to grow alfalfa, sweet clover is recommended. Although the roots of sweet clover do not grow to such a depth as alfalfa, yet they draw considerable plant food from the subsoil. When they decay they offer a source of drainage; and the soil, when plowed, breaks up fine and friable.

There are many thousand acres in the United States too poor to grow paying crops of corn and alfalfa, which could be profitably sown to sweet clover. While the process of soil restoration is in progress many pounds of honey, wool, mutton, and beef would come from the growing crop. Considerable seed may be obtained from an acre, and it brings a price equal to alfalfa seed. But, above all, its greatest value is as a soil-builder. If turned under it will supply more organic matter, more nitrogen, and at a minimum of cost, than any other known fertilizer or legume.

The magical words "open sesame" swung wide the doors of the great treasure-vault for Ali Baba in one of those charming tales related in Arabian Nights. Surely in our modern times sweet clover is the "open sesame" of soil-building for the American farmer.

Champaign Co., Ohio. Trell W. Yocum.

THE "BLACK HAND" DOWN IN JACKSONVILLE, FLA.

We clip the following from the *Times-Union:*

Mrs. Collins found the following Black Hand letter pinned to the door one morning:

"Deer Mis Collins—Onless you put a jar of jam, a hunk of chokolit cake, a apple pie an' a bag of candy down by the old well, we will steel vou little boy and keep him, onless you pay us a millyon dollars."

It seems to me the above has the earmarks, not only of the Black Hand, but of somebody who is black all over.

Health Notes

“GOOD HEALTH AND A GOOD BANK ACCOUNT AT ONE STROKE.”

I have thought fit to copy the following from the Youngstown *Telegram,* contributed by Ella Wheeler Wilcox, because it hits so completely just what Terry and I have been for years trying to drum into the minds of mankind. It not only hits squarely the high cost of living, but it also hits just as squarely a method of avoiding expensive medicines and doctors' bills.

ONE MAN'S DIET, AND WHAT IT DID FOR HIM; SUCH A MENU CALLS FOR GREAT SELF-DENIAL ON THE PART OF MOST HUMAN BEINGS, BUT IT SAVED THIS MAN FROM THE GRAVE.

In an exchange a man writes an account of how he keeps his family in health and with appetites satisfied on an incredibly small sum of money. Three people live on two dollars a week, and enjoy the best of vigor. There has been no physician called in the last seven years, and the bank account has grown steadily.

The diet prescribed by this man would call for great will power and continual self-denial on the part of most human beings.

It is a curious fact that even those men and women who believe themselves to be quite spiritual in their ideas of life, and who would be horrified to think any one regarded them as carnal or gross in their tastes, are yet unable to eliminate from their diet for any length of time the foods which they know to be injurious (or at least unnecessary to the sustaining of strength and health). A very charming young woman, who is filled with high ideals of life, declared she would rather die and be done with it than force herself to give up her favorite foods and beverages (coffee in particular) in order to benefit her health.

Nevertheless, when a man makes such positive statements regarding the benefits resulting from such a diet, benefits to body and purse, it is worth considering. Let us listen to what he says:

“Here's a well-balanced ration for one day. I eat only a little fruit for my breakfast.

“Breakfast—One apple or banana.

“Dinner—One dish of home-made corn flakes, one dish of boiled wheat cereal, one dish of vegetable salad, two or three slices of whole-wheat bread, one banana.

“Supper—One dish of home-made wheat flakes, one dish of home-made hulled hominy, one baked potato, one dish of fruit salad, whole wheat or graham bread.

“I suppose you will say that sounds monotonous, but I don't eat to gratify a discerning and whetted appetite. I eat to be strong and well, and to supply my body with the foods that it really needs.

“Nine years ago I was a wreck—worse than that, two doctors gave me from two to four months to live.

“The food elements needed by the body may be divided into seven classes—protein, starch, sugar, fats, salts, cellulose, and water—and these again into about fifteen different chemical elements, all of which are found in a single kernel of wheat, in just about the correct proportions.

“No other food in the world equals wheat in perfection. I have lived on wheat in various forms, with about 10 per cent of nuts, for weeks at a time.

“I am careful about buying my supplies, so that they will cost me the least money. I have a flaking machine. You can buy one, and make your own flakes at one cent a pound. I buy the corn and wheat for flakes by the bushel, and watch for opportunities to buy the fruits and vegetables at lowest cost. The apples and bananas usually cost me about three cents a pound, and my bananas I always get dead ripe—just turning black, as they are best then.

“I buy bread one or two days old at the rate of five for ten cents, for nothing would induce me to eat new bread. Cabbage and many other vegetables I eat raw.

“If I sometimes feel that I am not getting enough protein I add raw peanuts when I am making flakes and a little soaked dried fruit, such as figs, raisins, or dates, to make it a little more palatable.

“And all I drink is water—but plenty of it—though never near meal time.

“Now, that is my rule for health, and that is what I eat. What do you say to it? If you could have seen me nine years ago and could see me now you would know that there is something in it, for I am about the healthiest person you ever saw.”

While the men and women who are enjoying good health may not feel interested in this menu, it should be clipped and saved, and tried by the many dyspeptics who are paying useless money for patent medicines and feeing doctors with no results.

Poor people who are trying to sustain life on cheap food badly cooked, and who find the food trusts an insurmountable obstacle to economy, could not do better than to give this diet a fair trial for a few months.

Health and a good bank account may result—two great factors in happiness.

This man has a fruit meal for *breakfast* instead of supper, as I do. The dinner is about like mine; and, of course, if he has a fruit breakfast he wants something different for supper. *“No other food in the world can equal wheat.”* Terry and I have come to that conclusion exactly. Can some one tell us about this flake-making machine? Bread two or three days old is what I always call for if I can get it. I also eat raw peanuts occasionally—parched, of course. When fresh fruits are scarce I “go for” the dried or evaporated fruit as you may remember. Drinking water *between* meals is also a very important matter. I heartily agree with the writer where she says you had better clip out the above and paste it up where you can see it often. Now please note the concluding sentence—“killing two birds with one stone” with a vengeance—*good health* and a *good bank account* at one stroke. Are *you* not ready to exercise a little self-control as above?

We submitted the above to friend Terry, and he replies as follows:

The “flaking-machine” which Mr. A. I. Root refers to in a recent letter, and which is mentioned in inclosed proof, is made by The Dana Mfg. Co., Cincinnati, Ohio. It is called “The Dana Food-chopper.” I bought one several months ago, of the Chicago man referred to by Ella Wheeler Wilcox, for $1.25. It will “flake” into narrow stringy ribbons wheat which has been soaked for four or five hours until soft clear through. I tried this “flaked wheat” faithfully, both raw and cooked. For cooking we much prefer wheat cracked finely, or granulated, in our hand mill, and it is much less trouble to prepare it.

The Dana is a much better cutter than we have had before, and it is far easier to wash, as there are only two pieces, and they are easy to get at. Ours is No. 20, a small size.

It is possible that this raw flaking-machine wheat is better food than our cooked cracked wheat, but I am doubtful about it, and we like the cracked wheat better. I think it well to be slow about accepting at their face value all the statements in that article.

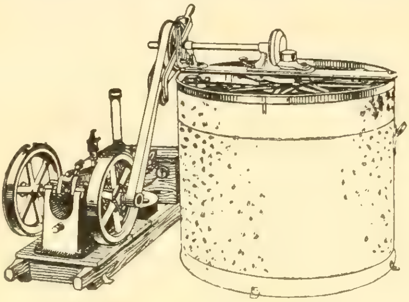
Hudson, Ohio, Nov. 3. T. B. TERRY.

Massachusetts
APR 4 - 1914
Agricultural
College

Gleanings in Bee Culture

VOL. XLII. APR. 1, 1914, NO. 7.

ROOT'S POWER EXTRACTORS for the LARGE PRODUCER for 1914



The late W. Z. Hutchinson, when asked as to what would combine best with beekeeping, said, " The best thing to go with bees is—more bees." If more bees is the slogan, then the best equipment should be installed. This would be an outfit that will handle advantageously the product of 200 or more colonies with a minimum of time and labor.

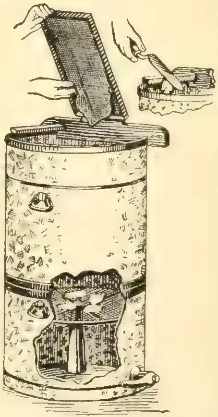
POWER EXTRACTING OUTFIT.—The value of this cannot be gauged entirely by the number of days it is used during the season. It should be remembered that it displaces a large amount of extra equipment in the way of extra supers and combs. The extracting must be done quickly in order to hold in check the swarming that is sure to follow unless room is given when needed. The amount thus saved, including reduction of labor and time, will materially reduce cost of production.

ENGINE.—This should not be selected without due examination. There are certain types of gasoline-engines that are not fitted for driving honey-extractors. Machines requiring to be started and stopped an endless number of times during the day require an engine of special construction, and the beekeeper will do well to investigate thoroughly these points before purchasing. Our new engines, the " **BUSY BEE,**" are selected for and are exactly adapted for just this kind of work.

CAPPING-MELTER.—No extracting house is complete without one. We have a number of styles and sizes to select from. Illustrations of all these will be found in our large catalog. The smaller sizes are intended to be used with wax-presses, which also are shown.

HONEY-KNIVES.—For rapid and easy work our new steam honey-knives can't be beat. **Extra tubing is furnished when ordered. Send for our new** 34-page book, "Power Honey-extractors," describing these fully.

These equipments are supplied by various dealers throughout the country. Information as to nearest dealer on request.



The A. I. Root Co., Medina, Ohio

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.

H. H. Root, Assistant Editor. E. R. Root, Editor. A. L. Boyden, Advertising Manager.
A. I. Root, Editor Home Department. J. T. Calvert, Business Manager.

Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLII. APRIL 1, 1914 NO. 7

Editorial

EDITION OF "THE HONEY-BEE" EXHAUSTED.

We have just learned from Mr. W. D. Wright that the edition of six thousand copies of Bulletin 49, entitled "The Honeybee," published by the New York State Department of Agriculture, is entirely exhausted, and can not be supplied hereafter. Mr. Wright adds, however, that some time in the future a new edition may be issued. If so, due notice will be given at that time.

WINTERING REPORTS.

On account of the late spring, it is still too early (March 23) to get reports on wintering. It is certain that colonies in cellars are having an extra-long siege, very few having been taken out at this writing. With the warm weather delayed so long, colonies that were not strong in the fall, or that were not supplied with an abundance of good stores, are certain to suffer.

Advance reports from New Jersey, Michigan, Massachusetts, Colorado, Wisconsin, Iowa, and New York show but little loss.

Considerable loss has been reported in certain parts of Kentucky where the weather has been extremely changeable. Further particulars will be given in our next issue.

OUR COVER PICTURE.

The bees shown on the cover of this issue were photographed last fall from life, or, rather, from death, for the bees were kept under water over night, then carefully dried, and brushed with camel's-hair brushes until they assumed as near as possible the appearance of live bees.

We realize that these pictures are far from perfect—for instance, the drone selected appears to be a trifle undersized in respect to length of abdomen. There are several other defects having to do with the arrangement of the legs, wings, etc., all of which we hope to rectify some time when we photograph bees again.

The original queen was just three-quarters of an inch long from tip of abdomen to tip of head. The larger view on the cover is 2¾ inches in length, so that the amount of enlargement of the bees in the center of the page is in the proportion of three to eleven; or, in other words, the pictures are nearly four times life size. The side views shown below are of the same bees enlarged only a trifle over two times.

THE CHARACTER OF THE MATERIAL USED IN THIS SPECIAL NUMBER.

Some, after reading the various articles by the queen-breeders in this special number on breeding, may feel that certain articles savor of advertising. In justice to all we should like to explain that it would hardly be possible to publish a special number of this kind without using the best ideas from some of our breeders. Some of these breeders, feeling that their remarks might be construed as an attempt at getting some free advertising, have suggested that their names be not used, but that a *nom de plume* be substituted. On reading over this array of splendid material, we have decided that the articles would lose considerable in interest if the names of the writers were not known, and we thought best to treat all alike, therefore, by publishing the names and addresses as usual. We are convinced that not one of the writers in this issue has tried to advertise his own particular queens, or those of any other breeder.

BEFORE YOU CONDEMN A QUEEN, BE SURE THAT THE QUEEN IS TO BLAME.

Frequently colonies are so situated that the bees naturally drift to other hives near by, which are either more prominent or else there are more bees going in and out, which causes the bees of the hive in question to be naturally drawn toward the scene of greater excitement. During a brisk honey-flow, moreover, heavily laden bees falling in the grass are apt to crawl into the first hive they come to, where they are welcomed, of course, because of their load of honey. Under such conditions, especially when the hives are located in groups, one or more hives in the group may suffer by the depletion in bees because they are located on the side away from the main source of honey, or on the side away from the natural line of flight from the apiary. This causes such a poor showing that the queen is likely to be blamed, when in reality she may be doing as well as any queen could under the circumstances.

Our Mr. George H. Rea tells of moving his weak colonies in the spring to the side of the apiary nearest the natural line of flight in order to get them strengthened by many returning bees which, coming back from the field (some of them at least), go into the nearest hive.

Sometimes a hive is located in an unfortunate position through the winter which causes an unusual mortality of the workers. In the spring the queen works at a disadvantage, having a much smaller colony to support her. It is not safe to condemn such a queen in the spring without giving her a chance to show what she can do under favorable conditions.

LONGEVITY A VERY IMPORTANT FACTOR.

Several of the writers in this number touch on the subject of longevity of the workers. Our Mr. Geo. H. Rea, referring especially to Dr. Miller's Straw, p. 205, March 15, submits the following:

> It is generally agreed by beekeepers everywhere that colonies strong in bees at all seasons of the year are most desirable, and give best results in the honey-flows. In spite of this fact it is often observed that some colonies very strong in bees do not produce nearly as much honey as other colonies in the same yard that are apparently not nearly as strong. Several conditions may enter into this, but it is not my purpose to discuss them, only in so far as the question of longevity enters into it.
>
> The subject may be divided into three propositions: 1. A good queen may easily lay sufficient eggs to build up rapidly and keep a colony strong; but the bees produced may be a little below the average in length of life, and the working force may die off so rapidly that the surplus honey gathered falls far below the average. Strong in young bees but weak in field force will, I believe, explain the reason for such strong colonies that produce but a small surplus. Such colonies are usually great swarmers.
>
> 2. A colony of average strength may produce good results, because the bees live a little over the average, and such a colony will really be strong in working force while only fair in young bees.
>
> 3. A colony may be of average strength, and produce an average crop of honey because the death rate may equal the rate of increase, thus striking a balance.
>
> Now, you scientific queen-breeders, get your thinking-caps on. How about the very prolific queens that produce a long-lived working force? It is my opinion that they are the ones that produce the big honey crops, and at the same time the swarming average is low. While this theory may be entirely wrong, yet the conditions exist just the same. I have made this a subject of careful observation for years in my own apiary as well as those of other beekeepers. My duties as inspector of apiaries for the State of Pennsylvania took me into several hundred apiaries last summer, and the remark was frequently made by the beekeeper that certain colonies, perhaps the strongest in the yard, seemed to do very little. Investigation of such cases proved to my satisfaction that the force consisted largely of bees too young to work in the field. Where was the older force? Only one answer, it seems to me.
>
> It is also a matter of observation that both our second and third propositions are true. If this theory is correct, then there are bees that excel in length of working days, while others die comparatively young. But now some fellow will jump to his feet and try to spoil all this pretty theory by stating that a bee's life is only as long as its wings will last. Even so, may not the hardy bee with strong flight have wings that will outwear those of the less vigorous? This argument will only strengthen the theory of a longer fielding period.
>
> This may sound like foolishness to our scientific men; but the conditions that I have mentioned stand, nevertheless, and I for one would like to know positively the reason for them. For a number of years I have been of the opinion that this matter of longevity is of prime importance; in fact, I will have the temerity to state that I believe it to be the most important factor in beekeeping—more important to the honey-producer than races of bees, color, or length of tongue. I am inclined to think that many beekeepers of this country believe in this same theory. Why not work it out?

AN OPEN LETTER FROM E. R. R. IN THE FIELD; CONDITIONS IN SOUTHEAST FLORIDA.

After spending three weeks on the West Coast in the vicinity of Bradentown I made my way to the East Coast, particularly the southern portion, which I had never visited. The West Coasters claim that they have the better side—better farming land and fewer mosquitos and sandflies; that the East Coast has been overboomed by the real-estate agents. While I had previously visited the upper part of the east side I was curious to know if the indictment of the West Siders were true. After having visited both sides I am reminded of the kettle calling the pot black. In many respects there is no difference. There are the same real-estate agents, good and bad; the same kind of land, good and bad, and the same kind of mosquitos, sandflies, and bugs, all teetotally bad; but, fortunately, they are not bad all the time and in all places. If one buys land near swamps or stagnant water he must expect mosquitos in warm or hot weather; but even then their depredations can be very largely mitigated by screens; and during the middle hours of the day they are not troublesome outdoors in the cities and towns, either on the East or West Coast.

After having visited practically the whole of Florida I have come to the conclusion that there is no county that has more good land capable of growing oranges and garden truck than Manatee Co., on the West Coast. I might make an exception in favor of the Everglades; but this section is as yet an unknown quantity. There are some long narrow stretches of good garden land along the canals and rivers on the southeast coast. Of these I shall speak later.

BEES AND GOOD LAND.

But you say, "What has all this garden-truck land to do with beekeeping?" Very much. Bees will not thrive where the soil is poor. Mark that down strong. For example, the saw or scrub palmetto, one of the principal sources of nectar in the State, will not yield honey of any account on poor land. In order to make the keeping of bees profitable, the saw palmetto should be three, four, and (better) six feet high. Land that will grow it as high as that will also grow the gallberry and the pennyroyal; and in some sections near the streams the black mangrove, the ty-ty, and the tupelo. Locations that will not show a vigorous and a heavy undergrowth should be avoided.

OUR CRUISER TRIP DOWN THE EAST COAST.

Mr. W. A. Selser, who spends his winters at Stuart, Fla., engaged for our party a 40-foot gasoline-cruiser so that we might the better study beekeeping conditions from Stuart to Miami. I will not at this time go into details of the big fish we did or *didn't* catch; of the places where I stopped and took notes and snapped the kodak, as these will be given in these columns later with the pictures. Mr. O. O. Poppleton, the most extensive and successful migratory beekeeper this country has ever known, was our guide for a part of the distance. What he doesn't know about this most southerly bee territory in the United States is not worth recording. I had an exceptional opportunity to interview him and others along the route, and, more important, stop our boat and see the territory under consideration.

Another member of our party was Charlie Repp, of the famous Repp Bros., the great apple-growers of New Jersey. The Repp boys are authorities on the relation of bees to apple-growing from the standpoint of the fruit-grower. Of course, I interviewed Charlie, and, as the newspaper man would say, he gave me some "good dope" that I shall give to our readers. I say "Charlie," for that exactly expresses the kind of genial good fellow that he is. Then we had Mr. Selser and wife and Mr. Gray and wife; and last, but not least, captain (the owner of the boat and a friend of Mr. Selser), Dr. F. S. Slifer, of Philadelphia. He is not only a physician of standing, but somewhat of a naturalist, although he might demur at the last-mentioned title. Mr. Gray and wife were old college mates, and Mr. Selser and wife, of course, need no introduction. To say that the trip was enjoyable is putting it mildly.

As a preliminary statement to what I shall say later concerning this trip I may add that Southern Florida is not a paradise for bees. While a comfortable living can be made, it has come to be largely a matter of the survival of the fittest. Only the "stayers" are in the field now. Some think they would have made more money north with their bees; but they had to move South for the climate, which Florida surely has, whatever we may say about the land.

OUR BEES IN APALACHICOLA, FLORIDA.

The cold weather in the North, with the spells of frost and freezing in Florida, even as far south as Palm Beach and Miami, made me fear what might happen to the success of our experiment in making increase from our 300 colonies on the river. When I saw how the tomato-plants by the acre had been frosted down in Southern Florida, and read of the freezing weather in the northern part of the State, I began to wonder if the cold would not kill off the ty-ty and the willow, upon which we were depending for our pollen and nectar for early breeding. If breeding at this stage should be stopped it might practically put a quietus on the whole proposition. Late letters from our Mr. Marchant in charge showed that, while hopeful, he was not sure that he would escape trouble.

It was with some trepidation that I took the train northward after leaving the cruiser. I scarcely dared ask Mr. Marchant, on arriving at Apalachicola, what he knew. Greatly to my relief he met me with a reassuring smile. "We are going to get there yet. The cold—yes, it has put us back; but the bees are busy on the willows, and have just begun on the black tupelo. The cold weather has held back the black tupelo so that it will come more gradually."

This will build up our colonies better than if the flow were faster. Mr. Marchant thinks the black tupelo will last two or three weeks. This will be followed soon by *white* tupelo, which is the main source for honey here. Yesterday I visited the yard and found about 100 colonies with upper stories, and queens in both; and there are many more that will soon need upper stories. All conditions so far, in spite of the previous bad weather, point to a good yield from both tupelos. It is not wise to count our chickens before they hatch; but we feel that the venture is going to be a success after all.

There is one thing I did not count on; and that was that a freeze in Northern Florida does not begin to do the damage that a frost does in the southern part of the State. It transpires, then, that, beyond the loss of time when the Apalachicola bees could not fly to gather pollen or nectar, little damage was done.

Apalachicola, March 17. E. R. Root.

Stray Straws

Dr. C. C. Miller, Marengo, Ill.

Speaking of the best time to cut bee-trees, if the bees are what you are after, cut in fruit-bloom; if you care only for the honey, cut in fall—the earlier the better after the flow is over.

"There is no doubt that the Italian bee does not excel as a 'comb-honey' bee," says L. S. Cranshaw, *British Bee Journal*, 79. They don't do so bad for me, L. S. One colony of three-banders last year gave me 390 sections—nice sections too.

G. M. Doolittle says, p. 167, it's better to bring bees out of the cellar a little before soft maples bloom. "In this locality" I never yet thought soft-maple bloom too late for bringing out bees; but once or more I have thought it too early. Still, I may be wrong.

If you want to provide a watering-place for bees so as to keep them from being troublesome at pumps, watering-places for horses, etc., be sure to do it *early*, before any habit is formed. After they have once started at the wrong place it's almost impossible to change them.

Young fellow, let me hand you a piece of advice that will be worth dollars to you if you follow it. Lay your plans right now to keep close tab on every pound of honey each colony stores this season. Then you'll know which to breed from, and which queens to replace because poor.

John E. Roebling, p. 232, pardon me, but I don't believe that your clipping queens in late spring has a thing to do with prevention of swarming. For many years I've clipped at that time all queens I could find with whole wings, and so far as I observed they swarmed as much as those clipped at other times.

The question is asked, p. 232, whether "heavy nurse bees" in a removed colony would "train down and become field bees or remain nurse bees to the end." There is such a thing as bees continuing nurse bees beyond the usual time, but only where there is a scarcity of young bees. In the case in question, some of the nurses would become field bees in 24 hours, some in 2 days, 3 days, and so on, until at the end of about 16 days all would be fielders.

C. S. Newsom, p. 181, says, "The bees that cluster on the outside of the hive are mostly young ones hardly able to fly," and ye editor says, "The cluster outside may be composed of field bees largely." Those two views are a long way apart. Some of you wide-awake young chaps watch next summer, and tell us which is right, or whether the truth lies between. [What we intended to imply was merely that the bees clustering out may be old bees or young bees, or bees of mixed ages.—Ed.]

Hasn't "The Outlaw" struck on a rather original way of getting wax, p. 223? At any rate, it looks good. I know it's the case in my supers that, when a section is not entirely filled with worker foundation, the bees are about sure to fill the vacancy with drone-comb, and I'm likely to find that drone-comb held open for the queen to lay in. Allow no drone-comb in the brood-chamber, and use a queen-excluder, and there ought to be a fair chance for the finest virgin drone-comb.

Replying to your question, p. 205, Mr. Editor, I mean that European foul brood is a blessing in the way of eliminating the careless, haphazard beekeeper. As to the other part, I don't care to say much, for I believe it to be to the interest of beekeepers in general to introduce best Italian blood to help fight European foul brood. Nevertheless, I must say that in my own apiary I am not sure there is any distinction between darkest and lightest bees. My bees are now mostly Italians, but European foul brood has not made them so.

I wish George M. Huntington had given us fuller particulars, p. 215. He says by time of alfalfa bloom strong colonies have the queen crowded for room in the brood-chamber; but he doesn't say whether supers are on or not. Unless his bees do differently from mine there will be no crowding of the brood-chamber with supers on. If no supers are on at this early time, and the brood-chamber is clogged, then extracting will give the queen room. Later, when the full flow is on, I have given empty combs, only to have them promptly filled with honey. When Alexander talks about extracting in May or early June the supers are not yet on, and then clogging with honey is fatal to best results. Answering the question whether extracting two or three frames from the brood-chamber would stop work in the supers I would say that *early* it will interfere not at all; later, in the full flow, as I have said, the emptied combs will be filled with honey, and, of course, that would interfere with super-work, at least temporarily, for later it may be that the brood will crowd out the honey.

Beekeeping in California

P. C. CHADWICK, Redlands, Cal.

March 10—no rain since Feb. 21; surface getting dry; weather very warm; oranges blooming, and sage in places showing much bloom.

* * *

Never in all my experience have I seen so much pollen stored as now. Many of my colonies have two full combs at the present time.

* * *

Hived my first swarm to-day, which is the earliest I have ever had the pleasure of capturing a stray. The colony from which it came must have been an exceptionally early breeder.

* * *

The recent heavy rains brought to most of us only joy; but some of our beemen lost heavily of hives and fixtures. In the aggregate several hundred colonies were washed away, and I should not be surprised if the entire loss would run into figures of more than a thousand, if all were reported. M. H. Mendleson and J. D. Bixby were the heaviest losers of full colonies. Mr. Bixby lost 125, Mr. Mendleson something like 100.

* * *

I wish to announce that I am no longer connected with the exhibit committee of the State Association. I am also informed that chairman M. H. Mendleson, of the committee, has decided to withdraw. It is with much regret that I announce my resignation; but opposition to our plans, working privately, as well as through the *Western Honey Bee*, has forced me to the conclusion that with such opposition our efforts could not overcome the prejudice engendered.

* * *

There are some peculiar features in connection with our semi-desert plants. One of these in particular I noticed the past year. Much of the wild alfalfa was killed during our freeze in January, 1913. There was very little of it in this locality that ever showed a green leaf during the entire spring and summer of that year, though many of the stocks seemed to contain life. Our recent heavy rains and warm sunshine have caused fully half of it to revive with the most luxurious growth I have ever seen.

* * *

Mr. J. T. Bowen, page 152, takes another "stab" at my opinion on the color of alfalfa honey. I wish to say to Mr. Bowen as well as to all others who have written regarding the matter, that I am studying this question of the color of honey; and while I may be wrong, it must be proven to me that I am. I know the tendency of the average beekeeper to judge the source from which his honey-flow comes far too well to back down on this proposition simply because I am opposed. We have the same contention about sage and other honeys in my locality that I consider as having been arrived at by immature observation.

* * *

We are face to face with the earliest season for years. Our winter has been a most unusual one in many respects. We have seen very little trace of frost during the entire winter, our rains have fallen in great storms covering a period of a week to ten days with very heavy precipitation, after which the sky clears and the warm weather continues. The oranges are beginning to bloom abundantly, and within two weeks will be in full bloom if the warm weather continues. The sage is from four to five weeks earlier in this locality than usual. I have never seen bees build up so rapidly from a small start as has been the case this season. They have come by leaps and bounds; but for all their speed they are yet behind the season. I am informed that things are not quite so advanced near the coast.

* * *

GREAT LOSS OF BEES IN THE PAST YEAR.

The loss of bees during the past twelve months has been quite heavy in many sections, while other parts have fared better in this respect. The chief trouble in this section has been the lack of stores; in other places it has been black brood. In this connection I quote from a letter of F. C. Wiggins, of San Diego:

> The beemen that I know hereabout all report great losses of bees owing to some disease, the same as destroyed nearly all of my own in 1907 and '8, I think. The hives would be found empty of bees with plenty of honey. One of my neighbors has a bee-ranch at Dulsura, and he has only 41 colonies left out of 120 last summer. Another in the same section lost all but one out of 50 colonies. Mr. G. F. Hedye, of Linda Vista, said he thought he would not save over ten or fifteen per cent of two apiaries of about 300 colonies. A few that I have at present all came through, and are getting honey from some sources so fast that I put on comb supers yesterday.

Conditions seem to be a great deal as they were in the spring of 1905, so far as the loss of bees is concerned; and if we should obtain a heavy yield the loss of bees would prevent a very great overproduction at best.

Notes from Canada

J. L. Byer, Mt. Joy, Ontario.

Are you joking, Dr. Miller, when you say that "on this side it is a rarity for bees to work on the second crop of red clover"? page 125. Nothing rare about it here in Ontario, as, on the contrary, it would be a rare thing indeed to find a field of second-crop red clover without *some* bees being on the blossoms. But it is a rare thing to find them doing enough to show any results in the supers. Only two or three times since I have been keeping bees has this happened.

* * *

The March 1st issue is practically a "city number," and this leads me to remark that the average country beekeeper has no idea of the number of colonies kept in some of our large cities. Toronto, right near me, with a population of over half a million, has a great number of bees inside its limits, as I learned when doing inspection work a few years ago. From the standpoint of disease, our city brethren have more to contend with than we have, as there may be bees within a short distance, and yet they may know nothing about it. This is not insinuating that the city beekeeper is necessarily not as well informed on the disease question as his country brother, for, on the contrary, I know many of them who are up to date, and hustlers in every sense of the word. But *one* beekeeper exposing foul brood in the city may do much more harm than if he were in the country, for the simple reason that very few may know that he has bees, and damage may be done to neighboring apiaries while the proprietors have no idea of the source of infection.

* * *

Under date of Feb. 10 I wrote that winter here in this part of Ontario had been above the average in temperature. An old saying is that "it is never safe to whistle till you are out of the bush," and it holds good in the present instance. Since that date we have had a whole winter's cold in a month, as for three weeks in February the weather broke all records for our locality. At our home here in York Co. the thermometer said 30 below on two different occasions, and for two weeks at a stretch it was never above zero in the morning. At the yard 100 miles north of Toronto, where over 300 colonies are wintering outdoors, it was very much colder than here in York Co. Three days in succession it was 43, 37, and 33 below respectively; and for the whole month of February only five mornings registered above zero. Results there will answer the many who live further north than I do, who, the past fall, asked me if I considered wintering outdoors would be safe for them to practice. No report has come from this north yard for the past three weeks; but I am not worrying much about the bees, for all that; for, notwithstanding the unusual cold, I am not expecting a heavy loss. The bees up there had a partial flight Nov. 23, and as it is cold to-day (March 9) it looks as though they will have had a steady confinement of four months at least before getting a chance to fly again.

PAINTING PAYS.

Regarding the matter of painting hives, as discussed by friend Doolittle on p. 842, Dec. 1, I might say that his claims as to *economy* of painting being a "myth" don't appeal to me a bit. I am not prepared to argue the question from the sanitary standpoint as applied to the health of the bees in painted or unpainted hives; but, honestly, I have no fear of the painted hives doing my bees any injury. But as to paint being a wood preservative, it seems absurd to me to try to prove otherwise. The oil in the paint is the main thing; and it takes little experimenting to prove that oil-soaked wood will not soak up water like unpainted wood; and moisture in the material is the main cause of decay, as I understand the matter. Great corporations like our big railway companies, etc., certainly think that paint pays from an economic standpoint; and business interests of that nature seldom make mistakes of that kind. While I have a few hundred painted hives I also have a few hundred unpainted ones, so the above is written from an unbiased position. The unpainted hives always give me a feeling of reproach whenever I look at them, as I feel they are not a paying proposition, to say nothing of other disadvantages they may have. We have double-walled hives sheeted on the outside with half-inch stuff that were made over 30 years ago. They were well painted at that time by my grandfather, and are to-day in fair condition. Others, made about 15 years ago, and not painted, have the sheeting all curled up and split at the ends in many cases. Certainly painting would have paid in this case.

Beekeeping Among the Rockies

WESLEY FOSTER, Boulder, Col.

BOTH SIDES OF THE SPRAYING QUESTION.

Yes, we have it in our Colorado law that spraying fruit-trees while in full bloom is a violation. It is this way: The clause dealing with the subject is inserted in the law relating to bee-diseases, otherwise known as our foul-brood law. A number of years ago a clause with the same substance was inserted in the horticultural law, and remained on the statute-books for several years, and did a great deal of good. Then when the horticulturists wanted a new law they drew up a bill and thoughtlessly left out the clause regarding spraying. This is only natural, for the fruitmen could hardly be expected to have the bees in mind all of the time. Perhaps the thoughtlessness was on the part of the beemen in allowing the subject to be passed over in that manner. But that is what happened, and the majority of Colorado beemen went blissfully on nursing the belief that they had protection from spraying in fruit-bloom.

A fruit-grower who has a large orchard, to get over it all in time, has to begin the spraying at the earliest date so that results may be secured. Suppose he begins when the petals have just begun to fall—what will be the result? There are many bees in the trees working on the blossoms. Suppose he does kill most of the fruit by his spraying that is not yet fertilized There is generally enough already fertilized to furnish a crop, and the work of thinning will not be so hard. This is an argument often made by intelligent fruit-growers—men who keep bees of their own, too; and some of them have knowingly poisoned their own bees, saying that it is better for them to buy bees every year and bring them in to be in turn poisoned than to delay the spraying. There are so many belated blossoms that some bees will be killed any way.

Different spraying methods and materials are continually being tried, and new pests of the orchards are appearing, so that the lot of the beeman is a hard one in a commercial-orchard district. My candid opinion is that the beeman had better keep out of the commercial-orchard districts. At Canon City two years ago the leaf-roller threatened the orchards, and spraying was recommended and done throughout the blooming period. It killed bees in large quantities, and did no good to speak of in control of the rollers. But another method of control has been found to be sure, so that the beeman need fear nothing from leaf-roller spraying.

The recommendations of horticultural authorities are generally to begin spraying for the codling moth when two-thirds of the petals have fallen. If this is followed, will not a good many bees be killed? And then how many fruit-growers can tell when any proportion of the petals have fallen?

Another trouble from spraying comes when the later summer and fall sprayings are applied to kill the later hatches of the codling-moth worm. Cover cropping is now quite generally done—alfalfa, sweet clover, alsike, and white and red clover being used. The bees working on the bloom under the apple-trees that have been sprayed sip the poisoned nectar from the blossoms, carry it home, and poison the brood and young hatched bees in the hive. New swarms hived in July have perished in two weeks, and many desert their hive precipitately.

In some sections of the fruit-growing West the belief still is held by some prominent fruitmen that bees are at least partly responsible for the spread of pear-blight. Some hold to the proposition that, if the bees were all moved out of a district, the spread of pear-blight could be controlled. The sentiment is strong enough in some places to attempt this if it were not for the difficulty of getting rid of the wild bees and also the difficulty of persuading the beemen of the truth of the proposition. I rather think that the fruitmen are not all of one mind on this question in any place.

A law to control the spraying of fruit-trees during blooming time is a hard one to enforce. It is a potent factor in the more pronounced cases, and I am in favor of a law; but a frank recognition of the difficulties, and a campaign of education by the beemen, will do much good in getting the fruitmen to follow the spirit of the law.

The beeman is safe enough if he is located in an orchard country where little spraying is done, as then the nectar from fruit-bloom will be a fine stimulant to the bees; but when the arsenate of lead comes along with the blooming of the trees he must look out. He may have nine neighbors who will follow the rules closely enough so that they will do no damage; and one neighbor by spraying a few days too soon will undo it all. And if the beeman is busy, he may never find out who that neighbor is. If he can find out in time, it can be stopped if there is a law in the State; but suppose the one man can't be found till after the damage is done. The average man pockets his loss, and does nothing.

Conversations with Doolittle

At Borodino, New York.

A BIT OF HISTORY.

"Do you practice line breeding, or do you breed by getting in new stock from other yards?"

A quarter of a century ago, instead of "line breeding" the term would be, "Do you breed all your queens from *pure Italian* stock?" a question which, in those years, was asked me scores of times. My answer invariably was, "No;" and then I had to explain that, according to my views, there is no such thing as a *pure* Italian bee or queen when viewed in the sense of a pure race, as the German or black bee is pure. At the best, I think the Italian bee is only a thoroughbred. Proof of my views is found in the fact that Italian bees vary from those coming from Italy which are so dark (a part of them) that they are hardly distinguishable from the German bees, to those from some breeders whose abdomens look almost like a "lump of gold" when sporting for the first time in the noonday sunshine. If the dark or leather-colored bees are pure, with their three bands scarcely distinguishable, and then only when the bees are filled with honey, what shall we say of those Italians whose five segments are a solid golden color with only a dark tip on the sixth?

We have, as a starting-point, a bee which, through hundreds of generations, penned in by the mountains of Italy, became established as a *variety* which proved to be superior to any thing the world contained elsewhere, which bee was imported to the United States about the middle of the last century, father L. L. Langstroth being one of the first importers. From the progeny of this Langstroth importation, Mrs. Ellen S. Tupper advertised queens. We sent $20.00 for one of her best queens. This queen was of a light chestnut color, the whole length of her abdomen, and gave workers and a queen progeny above any thing previously coming into central New York. About 1873 or '4 we sent $10.00 to H. A. King, Nevada, Ohio, for one of his best Italian queens. In this queen we had something bordering toward the orange, which gave bees with three bands that showed a chestnut-golden color, distinct enough so that all were to be seen without their being given honey to extend the abdomen, as was claimed necessary with imported stock to test their purity; and in this King queen we had bees that gave an average yield of comb honey 10 per cent above any thing before known in this section.

About that time, Mr. N. N. Betsinger said that he would rather have a certain colony of mine for honey production than any colony he ever looked at before. Later on I went to breeding from this queen. Her bees, and those from her daughters, readily outdistanced all the others in the yard for comb honey.

About that time I exchanged queens with Jos. M. Brooks, a noted beekeeper of Columbus, Ind., and through this exchange I not only added to the golden color of the bees I had already, but gained a point as to honey production and white cappings.

During the latter eighties I exchanged queens with Mr. L. L. Hearn, of Oakdale, W. Va., who was a noted breeder of "the best Italian bees" of those days, both of us claiming that, by this exchange, a gain would be made along all the lines necessary for the best bees. Since then I have made several exchanges; but as none of these seemed to make any advance over what was already in the home yard and at the outapiary, they were discarded without mixing them with what I already had.

In the mean time nearly all the bees in this section have been changed from the blacks and hybrids of the past to good Italian stock, very largely by furnishing, with ripe queen-cells, free of charge, those who would come to the yard.

To further these Italian bees still more, drones from one of the choicest breeders have been kept till other drones were killed off, when queens from another best breeder were of the right age to mate with them, and in this way an improvement has been made. In a year or two, queens would be reared from the drone side, and young drones saved from the queen side.

To get at the longevity part of the matter, as well as to prove some other points, also to prolong the life of the queen in question, an extra choice breeder would be taken from her colony in early June, and a queen giving different-colored workers put in her place. In this way it was easy to tell when the last of the breeders' bees passed away. Making a change in this way the first of August, bees from the breeder I was then using were found to quite a number on July 4 of the next year, but none the tenth, six days later.

Now, I do not know whether this would be called "line breeding" or something else; but I have given the bit of history telling the source, and way used, to bring our bees up from where they were in the early seventies.

General Correspondence

WHAT IS A GOOD QUEEN?

The Fact that Colonies Vary Proves that Improvement is Possible; Choosing a Strain Adapted to the Locality

BY E. S. MILES

The quality of our bees is the foundation of our success. If one is to build a permanently successful business it is my belief that he must have a good strain of bees—one suited to his locality and methods; and the better the bees, the more successful the business, other things being equal.

The writer noticed, many years ago, that there is a great variation in bees; that they are no exception to the rule of variation that the close observer sees in all the animal kingdom.

If you want bad stingers you can find them; if you want those that swarm every favorable time—if you want those that seldom store much surplus, you can find them; and the wonder is that, under our present haphazard hit-or-miss, go-as-you-like way of breeding bees, they are not worse than they are.

But, of course, the hit-or-miss way does *hit* part of the time; hence *some* good colonies among almost all strains. When I say *good* colonies I do not mean strong ones; but I mean good ones from the viewpoint of the honey-producer.

If I were a nature student only, and interested in bees only as a study, I should be, perhaps, as much interested in a poor colony (from the honey-producer's standpoint) as in a good one. But I am speaking now solely on the utility of the bees for honey production.

In bees we see then, I say, a great variation in characteristics. Some have undertaken to deny this, but have simply advertised their own lack of powers of close observation or their lack of opportunity. This variation is the breeder's hope for better things. True, it will lead nowhere if not followed intelligently, and that is true of the hope of any thing better in any thing in the world. But first, we must know what we *want* in the bee—what traits to look for—before we start selection for any thing in particular; and I wish to go on record as claiming that one should have bees adapted to his own locality. A good strain developed in another and a different locality *may* be all right for yours, and then, again, it may not be.

There is a great variation as to how they breed before, during, and after the flow; and the character of your location as to the number of flows, and when they come, determine when and how much you want them to breed for best results. And here I wish to remark that, in my estimation, there are two popular beliefs that do more to hold back the improvement of the bee than all else put together unless we except the old sin of neglect. These are, the belief that the more prolific the bees the better, and that queens reared under the natural-swarming impulse are the best.

I do not wish to speak for other than a white-clover or basswood locality, having had no experience with any other, and I am *not* of those who teach from other men's experience; but under that head I wish to state, as positively as I can make it, my dissent from these errors. Let us look at the bees as though their characteristics were habits. Let us say they have certain habits. One strain has a habit of swarming; another of not breeding strong in spring; another of not living through the winter; another of *not* swarming so long as they have a chance to store up honey; another of capping and building beautiful combs; another of making "greasy" cappings, etc. All experienced beemen have seen bees with all these "habits" and many more.

If we look carefully into these "habits" it will surprise us to find how many of them are linked together, or connected, one being a natural sequence of another, so that, if we avoid one, in some cases we also avoid another or more; and if we like *one*, and choose it, we may get another that is desirable along with it. Mind, however, that I do not say, "If you get one good habit *all* others are good;" for sometimes *two* good habits are the result of one cause. Now, when we come down to selecting, the real difficulty begins; for what two men see alike? What two men would both choose the same colony for a breeder in any certain yard? Yet in every yard of bees there is a *one* best one for breeding purposes if we could know it; and the man who does know, or comes nearest to knowing, every thing else being equal, will produce the finest strain of bees.

Right here, perhaps, some one will say, "Why, take that colony that gives the most honey, of course."

Yes, that's *one* test, surely; but what of (as we have heard of cases) a famous queen whose daughters none of them come up to her? In that case, evidently, we are on the wrong track *unless her daughters are above the average quality we can obtain from any other breeder.* But there may be other colonies not nearly so large surplus producers that may produce daughters more uniformly good producers. This can be explained on the supposition that the queen of the large-surplus colony may be a grade or mongrel in a very slight degree—so slight that it is noticeable in no way except through her progeny; or if not that, the mating is not the proper "nick," as stockmen say, to perpetuate all of the good qualities. Unless I am mistaken, it is *not* always the very finest and most perfect specimens among our domestic animals that produce the prize-winners and sweepstake getters, but certain strains mated in a certain way. As I understand it, the breeder is continually on the lookout for a sire or dam which will produce prize-winners, or specimens nearest to perfection.

What a howl of misunderstanding goes up when one mentions an "improved bee," a "non-swarming bee," or a "red-clover bee"! The wise one quickly says, "Let *me* take your non-swarmers, and I'll make 'em swarm the first good season." Why, bless your poor misunderstanding heart, *I* can take the finest thoroughbred cow and make her as worthless as any scrub in a year, and her progeny *scrubs* in four or five years or less. No one expects to reach perfection in a few years, nor expects to hold it, if ever reached, without his best efforts. There is a vast difference, my brethren, between "going on toward perfection," whether we ever "attain" or not, and leaning back on the traces and saying, "No use, it can't be done." If you won't do any thing yourself, my brother, in Heaven's name don't try to hold back the ones who are trying.

But to go back to our subject, I wished to call attention to a few of the habits that, according to my experience, appear to be related: The trait, or habit, of prolificness, and the swarming habit, go together. In other words, if you want *swarmers,* select very prolific strains of bees; but I have not been able to get the honey-gathering habit very strong in these extra-prolific strains. I do not say it can *not* be done; but all those I have had have not been *honey-gatherers* as compared with those with that habit. There are strains, however, of the Italian bee that breed fairly well until a heavy flow comes, when their strong "habit" of honey-gathering takes possession of them and they bend every energy to storing honey, even to the point of almost stopping brood-rearing some of the best days. These are the bees to get our non-swarmers from, and I have yet to find a colony slow to swarm that was not a good honey-gatherer.

The point to decide and establish is, "How strong do we want this honey-storing habit, and not have it overdone so our colonies will not keep up proper strength for later use?" If I were running for extracted honey altogether, I should not fear overdoing the matter at all; but for section honey it would not do to have bees that fill the brood-combs too early in the season (the same bees that do this will not do it with plenty of built combs), as in extracting.

My idea of a bee for this locality (white clover and basswood) is one that must be hardy, so as to winter, of course, and just prolific enough to fill the hive fairly full of brood by the clover harvest; but they must have the honey-storing "habit" so strong that they fill every thing with honey before they swarm. Then I make it my business to see that they have plenty of room, so that they never reach that stage.

Some one will say, "Yes, sometimes they will fill every thing, and then, again, they'll swarm with lots of empty comb." True, my brother; true enough, if you are talking of bees bred "hit or miss," "promiscuous like," as most bees are; but that is not the kind I am referring to. I say you can, by selection, breed bees that will do as I suggest, if you can select the right ones to breed from. Why, how many times have I had people ask, "Had any swarms yet? I had a fine swarm to-day," and I would say, "If I had a colony that would swarm at *this* time of year I'd pinch the queen's head off." The party would look at me as though I were a freak, and just delighted in odd sayings. Yes, if you breed "hit or miss," as by natural swarming, you will have some freak colonies that will swarm, apparently, just to pass the time, and when they can not get enough to live on.

It is possible to have a strain that will gather a good living right beside these worthless freaks, and be building up slowly and steadily, and be ready for the crop, without much attention, when the hit-or-miss kind will surely *miss* unless you watch closely and feed; and even then the chances are for *swarms* later instead of honey.

There is a laughable illustration of this in the bee world to-day. The writer urged breeding a bee more for honey-gathering and less for swarming, some years ago, and gave a record showing a very small percentage of swarming. A certain writer would not hear to the idea that the bee could be improved, but claimed that a bee is a bee, always was, and always will be the same, and that it is only through the ignorant imagination that unlearned men claim a better bee than those commonly found through the country; but *now* this man is announcing that he has lost about all his bees, owing to there not being enough nectar for brood-rearing, and that he has given up the production of section honey owing to the appalling number of unfinished sections. The writer kept bees for years within five miles of this man's location; is well acquainted all through his neighborhood, having grown to manhood there, and knows both from observation and personal experience that the locality is practically the same as here; yet we have produced, during these same seasons, good average crops; have increased the number of our colonies each year, and have found the business profitable right along, both of extracted and of section honey. If this is not an argument for an improved bee, then pardon me for relating it, as that is my only purpose.

Now a word about red-clover bees. I have never had bees from the advertised red-clover strains; but, listen: Two seasons out of the past seven these "improved" or select-bred Italians have given me a nice surplus from red clover, one year storing clear white honey at the time that common hybrids right beside them stored dark honey-dew.

A little is also due to the old-fogy notion that natural-swarming queens are the best. Whoever contends thus has *not* tried both, or else he does not know how to rear queens outside of natural swarming. If there is one thing I have learned, and am *sure* of, it is that I can have *better* queens by artificial methods than by swarming—not only because I rear them from the stocks I like, so as to get the "habits" I want; but I can not get as good queens from these same stocks if reared in swarming colonies. This is something I can not explain; but I think the *disposition* of the colony nursing the young queens may possibly be imparted to the young queens to some extent. I am thoroughly convinced that, to improve and *hold the improvement* permanently, we must breed our queens in colonies that have no desire *except* for a queen, and possibly when their energy is devoted to honey-gathering, as in a good flow.

I would not give a fig for all the improvement gained in 100 years by natural swarming, however managed. Such a plan is out of date; it is a back number, and every progressive and wide-awake honey-producer can do better without it. He can handle more bees and raise more honey with the same labor without; then why not get rid of it?

Breed it out! Breed it out! It isn't the fellows who have *tried* who say it can not be done, but it's those who have *not*.

If you don't want swarming, don't breed from swarming colonies nor use them for cell-building. And don't keep bees that tend to keep an extra-large amount of brood through the flow, as, one year with another, they will not pay as well in a clover or basswood location, and they will make more labor by swarming.

This is so large a subject that it is difficult to treat it in one or even two articles; but this is given in hopes of giving cause for thought and discussion.

Dunlap, Iowa.

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THE LACK OF A STANDARD OF MARKINGS TO DETERMINE THE DIFFERENT STRAINS OF ITALIANS

BY ARTHUR WILLIAMS

A number of years ago we began making preparations for conducting a series of experiments with the different races and their crosses, by acquiring some isolated tracts where no bees existed, and where forage was sufficient to insure success. Right at the outset, however, we met with difficulty in determining the purity of any certain race, for there seems to be no fixed standard—no uniformity of type. Every breeder from whom we purchased queens testified to their purity, yet hardly any two would produce bees alike; and two queens from the same breeder would show different colors and characteristics.

Last year I began trying the direct importation; but the distance here is so great that, with the present mailing-cage, it is any thing but a success; in fact, for all my dealings with queen-breeders I have very little to show but considerable expense and experience and a magnificent collection of queen-cages. I might add that, for ingenuity in inventing excuses, I believe that queen-breeders outclass any other people I have ever seen.

I received a certain breeder's card that was sent with an untested golden that I ordered after trying tested queens with unsatisfactory results. The queen accompanying the card was a very pretty golden, all right; but her progeny are any thing but goldens—two bands are the best that any of them show.

A number of years ago Mr. A. I. Root recommended gorging bees with honey and examining them by transmitted light. Those that showed only two bands were to be called *hybrids*. Well, these bees *are* hybrids all right. This is only one instance of many. The trouble seems to be that there is no well-defined standard to breed to; and as long as this chaotic condition exists, breeders can dispose of mismated queens with impunity; and even with the most conscientious there is bound to be so much variation that misunderstandings and dissatisfaction are bound to occur.

My suggestion is that a body composed of the best representative beekeepers in the country, with The A. I. Root Company and Dr. Phillips, form a standard as to what every known race should be in its purity; then The A. I. Root Company will publish a little book with colored plates and complete description. This should be accepted as authority, and every breeder conform as nearly as possible to the type therein set forth. Then, and not until then, will there be much progress made in developing the honey-bee.

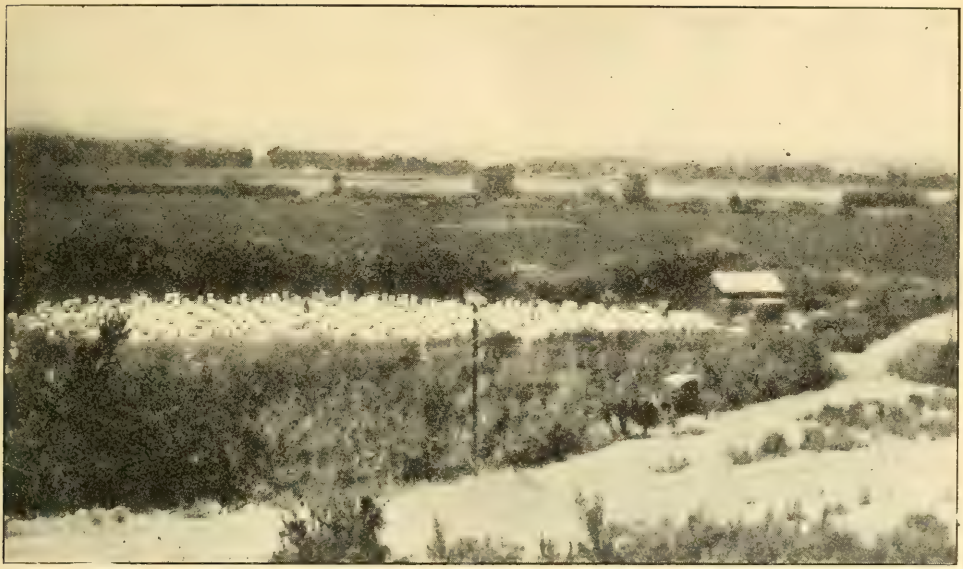
Arroyo Grande, Cal.

[It is true there is no uniform scheme by which different strains of Italian bees may be distinguished. A golden Italian bee may be any thing from a bright-yellow three-banded to a yellow five-banded with an occasional specimen of bee yellow all over; but we have the proof now that there are very few five-banded and yellow-all-over bees. The so-called five-banded queens usually do not show up any better than three-banded, four-banded, with occasional five-banded bees. There are those who have claimed to have all five-banded bees; but when we come to examine them very carefully it appears that the larger percentage of the bees are four-banded, with an occasional five-banded bee. For that reason we have discouraged the advertising of five-banded bees, and have recommended the term "golden." This term is somewhat flexible, and means any thing from a bright three-banded Italian to a four-banded bee. As there is such a difference in marking of the same queen it would be very difficult to make a uniform standard; and about all one can do is to advertise golden bees and state such a queen will run such a percentage of four-banded and such a percentage of five-banded; but one can not very well advertise to produce bees running nothing less than four-banded and the majority five-banded—at least we have not seen any stock of that kind.

When it comes to pure Italians, it is generally accepted throughout that three yellow bands are the standard markings for ordinary Italian bees; but nevertheless it is a fact that bees direct from Italy will sometimes show only two bands and two bands and a half; that is to say, the third band next to the thorax is so indistinct that it does not show unless the bees are filled with honey, as A. I. Root recommended years ago. Some of the finest and best workers we have ever had have been leather-colored bees; that is to say, they had two bands clear and a third band showing indistinctly, or what might be called a 2½-banded bee, as George B. Howe would say.

We don't like to discourage any effort toward securing a uniform standard, because of the variation that appears in the golden Italians. In the stock that we sell of this kind, we do not guarantee any thing except bright yellow color; and as far as we ever go is to guarantee three yellow bands of bright yellow and occasionally four yellow bands. Sometimes we are fortunate enough to have stock that will run three-banded and largely four-banded, say 25 per cent three-banded and 70 per cent four-banded, and perhaps 5 per cent five-banded. Such stock we would call very bright golden, and about as good as any one could ever secure. Now, unfortunately, queens from such a queen would show bees three-banded and four-banded; possibly they would show only three bands; they might take after their father; and it is unfortunate, too, that some of these so-called golden breeders will have daughters that will show bees of only two bands. For that reason we don't like to sell golden Italians; we prefer to sell the regular standard three-banded bees that will run fairly uniform. Bees that have been bred for color are very unstable in their markings.

If any one can propose any scheme that will establish a uniform standard for all bees, we shall be glad to adopt it. Tentatively we might suggest for the leather-colored Italians, especially imported, that the standard be two, two and one-half to three bands for leather-colored and imported. For ordinary Italians, three-banded;



Mr. Harvey's apiary at Montrose, Col., spring count 200; fall count, 280. Honey crop 850 cases comb honey and 40 cases culls.

for Goldens, three-banded and four-banded. It would be a great deal better to make the standard a little *under* what the bees will probably show than to make it too high. When the standard calls for too much, the stock itself will be liable to fall below it, and this will cause ill feeling and complaint. —Ed.]

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SOME BEEMEN I HAVE KNOWN

M. W. Harvey, Montrose.

BY WESLEY FOSTER

Once in a while we meet a beekeeper whose careful, painstaking, methodical ways stand out in bold relief. Such a beekeeper, when found, will generally be quiet and unassuming, and one who has to be drawn out by questioning. He will rarely speak at conventions, and, unless asked, will not tell of the methods used in his beekeeping practice.

Such a man is M. W. Harvey, of Montrose, owner of 700 colonies of bees all in well-painted dovetailed hives located in apiaries of methodical arrangement with a well-built honey-house at each outyard. He drives a Ford touring-car, and has had the least expense for upkeep of any automobilist I have heard of. Mr. J. C. Matthews says that Mr. Harvey never drives faster than 10 miles an hour. I asked Mr. Harvey what he thought of the Ford, and he replied that it was the best-built car, regardless of price, and he spoke as though he meant every word. His words have a peculiar power of carrying conviction, probably because, when he does speak, he speaks out of his experience. He will not give *you* his opinion on any thing. If he does not know he will tell you so—no " guess so " or " perhaps " about it.

Mr. Harvey, contrary to the practice of most beekeepers, does not keep any bees, fixtures, or appliances at home. If he does he had them all out of sight when I called. Every thing is kept in the houses at the outyards, and the home place does not betray his kind of business. From all appearances Mr. Harvey might be a retired farmer, a business man, or a professional man with his office over town. The same order is evident about his neat home that is shown at his apiaries. His methods of honey production have been reduced to a system by which he has been able to obtain higher averages per colony, with a better quality of honey, than his fellow beekeepers. He told me that any beekeeper following the same system, and working as thoroughly as he does, can have the same results. There

Closer view of Mr. Harvey's apiary, showing the way western producers take off honey during a good flow. A few of the bees are smoked out, the super jerked off, and then stood on end to allow the rest of the bees to come out at their leisure. This plan can be followed only during a honey flow.

is no wizardry about his methods unless the careful, thoughtful, methodical worker is a wizard.

Mr. and Mrs. Harvey spend their winters in California, as do quite a number of other western beemen and families. Once a beeman goes there for the winter he goes back year after year if the crop warrants it. He told me he had made from $3000 to $5000 per year from his bees regularly, although he has suffered very much from winter and spring losses and from poisoning of his bees by careless people spraying fruit-trees while in bloom. Would that we might have more beemen like Mr. Harvey. He is helping to raise the standards of beekeeping, not by his preaching but by his practice.

Boulder, Col.

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REARING GOOD QUEENS

BY R. F. HOLTERMANN

From an address given by Mr. Roy Keet, Black River, N. Y., at a convention of the Jefferson and St. Lawrence County Beekeepers

In Jefferson and St. Lawrence counties live some of the best beekeepers in New York; and the past poor season in that part of the State did not appear to dampen their beekeeping ardor in the least.

Mr. Roy Keet, of Black River, N. Y., gave the following on rearing good queens:

A good queen is, in my estimation, the most important factor of success in beekeeping. One may be the fortunate owner of all modern equipment and still not have good queens. Good queens are as essential in the apiary as are good cows in the herd. Success depends on the quality of the queen.

It may be well to explain here what I mean by a good queen. She must be of good stock; she should be reared under the best possible conditions, which I shall name later on; she should be strong and prolific; she should lay her eggs in a compact cluster, and not scatter them; her bees should be gentle; and in these days of brood diseases she must be purely mated. I will add further from my experience, I believe she should be a pure Italian.

METHOD OF REARING.

First, we must choose the colony for our work. This should not be a difficult matter, for this colony need not be the strongest in the yard. One having six combs of brood with plenty of bees to cover them will answer. Having selected the colony, we first remove the queen. If she is a valuable one we retain her in a nucleus for future use. Frequently, under such circumstances, I build up this nucleus into a full colony for winter. We next remove as much of the unsealed brood as possible. In a ten-frame hive I crowd the bees down to five or six combs, and follow up with a two-inch chaff dummy. We now have the bees crowded; and, in addition to being queenless, their eggs and larvæ will also have been taken away. So we close the hive, and leave them five days to their unpleasant meditation.

Unless honey is coming in steadily from natural sources we must feed every morning and night. For this purpose I prefer an entrance feeder, consisting of a quart Mason jar, having a perforated cap or cover. I close all the holes, but two, with wax. It takes the bees about twenty-four hours to empty this jar of thin honey, and this means that it comes to them slowly like a natural honey-flow, and thus prevents robbing. On this account it is much better than feeding the whole amount at once. This feeding should be kept up until the queen-cells are sealed.

We now proceed to our breeding colony. and place a good clean worker comb in the very center of the brood-nest, where the breeding queen will be most likely to find it first. When she has laid a few hundred eggs this comb is taken out and placed in the center of our prepared queenless colony mentioned above. In three days they will hatch, and be abundantly fed. In twelve hours after they hatch they are ready to be transferred to the cell-cups.

In this queenless colony the little larvæ will be fairly swimming in jelly. If the directions have been followed closely, no extra royal jelly will be needed in the process of grafting. Lift from the cell the little larva, jelly and all, on the point of a flexible quill, and place in the prepared cell-cup. Graft fifteen of these cups in like manner, and take them back to the queenless colony. Make sure that the bees have started no other cells in the meantime. If so, cut out every one. Arrange the combs so that the frame containing the prepared cell-cups be placed between two combs of hatching brood. Close the hive, and do not disturb it for forty-eight hours. Every cell should be accepted, owing to the small number grafted.

The cells may be left till the twelfth day; then take them out and place them in a three-frame nucleus to hatch. Be very careful that the cells be not chilled, for a chilled cell will make a dark queen.

Several things must be kept in mind. First, that the queen-rearing colony is free from unsealed brood, and that the bees are crowded down to fewer combs. Contract the entrance according to the temperature, and feed daily. Create in this way a prosperous condition, and do not disturb the bees unnecessarily.

Queens reared in this manner are started from the *egg*. We do not guess at the age of the larva, for we transfer larva, jelly, and all at one time, so that the delicate larva itself is not touched. From the very start the larva is fed as for a queen in just the way the bees do it when left to their own resources. Under natural conditions bees do not feed a larva three days for a worker, then change their minds and feed royal jelly for a queen. They feed royal jelly from the very start; so, in order to rear good queens, we must do the same. Let the bees work as near to nature as possible, and thus avoid many mistakes.

Mr. George B. Howe, also of Black River, said he generally uses a strong colony for queen-rearing, and that he likes to find a colony superseding their queen, but that expert beekeepers can rear good queens without colonies that are superseding.

Mr. F. D. House, President of The New York State Beekeepers' Association, said that he prefers to crowd the bees even more than the amount mentioned by Mr. Keet above. That is, he crowds a ten-frame colony down on to three frames, taking away all brood, but leaving pollen, honey, and water. He said further that fifteen cells is a rather small number, but that such number is all right nevertheless. Mr. House feeds ten to fifteen days before queen-rearing time unless there is a natural honey-flow. This brings about swarming conditions.

Mr. Howe said that in his locality he wants the capped brood, because the nights are cooler than they are in Mr. House's locality. Mr. Keet said he wants the capped brood not only for warmth, but for providing plenty of nurse bees.

A further statement was made to the effect that the reason these bees cut out the sides of the queen-cells and consume the royal jelly, even in July, is the condition of the honey-flow or absence of the flow being adverse to queen-rearing; also dead larvæ, excitement, too much smoke, and black bees.

Brantford, Ont.

[An interesting point is raised above in the plan given by Mr. Keet—that is, whether it would be better to have the larvæ intended for queens to be transferred into the queen-cell cups with royal jelly at the very first. The whole question hinges upon this: Whether worker larvæ are fed royal jelly the first three days or not. Some of our authorities have claimed that all worker larvæ are fed royal jelly the first three days, and that they are then fed a coarser food.

Those intended for queens, however, are fed the richer royal jelly right along. Whether this be the case we do not know, as it is a rather difficult matter to get any reliable data on. If any of our readers have had any opportunity for making experiments one way or the other, we should be glad to hear from them.—Ed.]

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THE STRONGEST VIRGINS MATE THE EARLIEST AND BECOME THE BEST QUEENS

BY F. A. HOOPER

Why can not all the colonies in the same yard store alike? In an apiary of, say, 300 colonies, one will find that about one-third store on an average 8 imperial gallons of honey (112 pounds each); another hundred will average about 4 gallons, and the remainder will average from three gallons to nothing. The first third we class as No. 1. These colonies, on the opening of the season, have a large force of bees ready for the field; and on examining them, the combs will be found to have evenly sealed brood and plenty of stores.

The next third we class as No. 2. These colonies, on the opening of the season, are not strong enough to take advantage of the first bloom, for they are deficient in brood, bees, and stores.

The remaining third we class as No. 3. These, on the opening of the season, are so poor that they have to be supplied with combs of brood and stores to keep them alive until they gain sufficient strength to be able to gather nectar for themselves.

These 300 colonies may have queens all reared from the same mother and under the same conditions, yet some are very much inferior to the others.

Again, suppose we make up, say, 100 three-frame nuclei, each nucleus having the same amount of bees, brood, and stores, or as near as possible. The cells are distributed the same day, and from five to twelve days all these virgin queens are mated. In eight weeks, and sometimes less, many of these nuclei will have built up to strong ten-frame colonies, while others will take from three to four months before they become established colonies. There are others, again, that will not build up, but dwindle and die out if left unaided.

THE FAULT LIES WITH THE QUEEN.

No one, by looking at a queen, can tell for a certainty that she is of good quality. I have had them as large as a queen should be, yet they were not worth a pound of honey. On the other hand I have had queens with nothing very remarkable about them, yet their subjects stored twenty imperial gallons of honey in one season—that is, from December to the following June. From these queens I bred several, but none of their daughters proved of much value.

For the sake of experiment I once bred some queens from very inferior stock, and yet of that lot there was a couple whose bees stored over 100 pounds of honey in a season. Is there no method left untried to get all our queens to give good results?

We all know that virgin queens take from four to twelve days in mating. Those that get mated on the tenth, eleventh, and twelfth day generally turn out drone-layers, or start drone-laying before they commence to lay worker eggs. Note these queens carefully; and before the following season opens they will have died out or absconded with their little swarm.

In my opinion it is the strongest and most healthy virgins that get mated soon after hatching, and it is these queens we are indebted to for large yields of honey.

Four Paths, Clarendon, Jamaica, B. W. I.

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UNIFORMITY IN QUEENS AND RESULTS NOT IMPOSSIBLE

BY G. M. DOOLITTLE

Mr. Hooper, in the foregoing, tells us something of his experience with beekeeping on that sunny island Jamaica, where there are no frosts, to say nothing of the 20 to 30 degrees below zero which we here in York State have to contend with. It would seem that there should be no trouble in having every colony in such a warm climate brought to perfection ready for any honey harvest when it comes. But instead of perfection I find him telling of just about the same thing I used to have 25 to 40 years ago, namely, one-third of the colonies in good condition for the harvest; one-third scarcely fair, while the remaining third are "no good" so far as any surplus is concerned. And I note that he seems to think that the fault of the poorness of the last two thirds, or of 200 out of the 300 colonies, lies with the queen. Undoubtedly this is largely true; but the stores to be used by the different colonies while in a state of repose, the age and vitality of the bees, and the location of the colonies, all have an important bearing in this matter.

Some colonies get started to work to a greater or less extent on different bloom; and where so started they will adhere to quite an extent on that bloom; and when this bloom is a long distance from the hive the vitality of the bees is worn out faster than when it is nearer their home. Then colonies located in the shade, in low damp places, or with the entrance facing away from the sun, do not ripen their stores as perfectly as do those with conditions more favorable. We used to talk about colonies as " near alike as two peas," with one doing good work and the other getting scarcely a living; but most of our practical apiarists realize that, where every thing is considered, two colonies which may appear perfectly alike can, by one or more " cog-wheels " being out of mesh, be very dissimilar; and this dissimilarity may make all the difference between the good and the poor.

But let us turn our attention to the part which the queen plays in this matter. Mr. Hooper says, " These 300 colonies may have queens all reared from the same mother and under the same conditions, yet some are very much inferior to others." Under natural swarming this is possible; but under the guidance of an intelligent queen-breeder it is not probable. With natural swarming the rule is that, with the sealing of the first queen-cell, out comes the first or prime swarm; and with this swarm go ¾ to ⅞ of all the bees the colony numbered before swarming. The inmate of the first queen-cell sealed has had all the food and attention lavished on it that the first one did to bring forth a queen superior in every respect; and all that is required from now on till she emerges from her cell is sufficient heat for her development. But as a rule there will be half a dozen queen larvæ in other cells, all the way from those just hatched from the egg to those near to sealing over, and these can not have the attention lavished on them that the first did; therefore they, as Mr. Hooper says, " may be inferior," and that just in proportion to the lack of the best environment.

Again, Mr. Hooper tells us, " We all know that virgin queens take from four to twelve days in mating." If by this he means that any queen ever mates in four days from *maturity,* I can not be classed with the " all;" for I never knew of such an occurence. I do not say that such is *not* possible under the genial sunshine of Jamaica, but even that is doubtful. I once rushed into print with the report that I had a queen *emerge from the cell* on the first day of July, lead out a swarm on the second day, and commence to lay on the fourth day of the same month, and so I reasoned that all of the old records were broken. But the next year, during swarming time, we had a week of cool rainy weather, so disagreeable that not a swarm issued. On the eighth day the sun came out, and the air was balmy. Then, to my surprise, I found plenty of young queens running around in hives which had had swarms issue from them with the old or mother queen, from four to eight hours before. In this way my " broken records " showed that I was not familiar with the fact, often proven since then, that virgin queens are often held in their cells by the worker bees from one to eight days after maturity, in which case they go out to mate in accord with the length of time from their *maturity* rather than from the time they emerged from the cell.

During those earlier years of my beekeeping life I was continually puzzling over the problem of part of my colonies giving good yields of honey while others did scarcely any thing; and it was not till I commenced rearing queens as given in "Scientific Queen-rearing" that I found any answer to that puzzle. Then, with the selection of larvæ of proper age, from my best queen mothers, I began to obtain more nearly like results from all the colonies in the apiary. I now had matters under my own control to a great extent; and by taking a frame of nicely cleaned and polished comb from a colony which was preparing the cells for the first eggs laid by a recently mated virgin queen, and putting this in with my best breeder for twelve hours, and then taking it out and giving it to a queenless colony, I learned just the size and looks of a larva twenty-four to thirty-six hours old, which were the ages when they could be turned into the best of queens to the best advantage by " broody " bees, with the richest chyle they had prepared for these larvæ.

Having these things learned I then had nineteen out of twenty of my virgin queens mated and laying on the eighth or ninth day after maturity, with not one out of fifty failing to have plenty of eggs in the combs of her colony or nucleus on the tenth day, during the summer months, which would give about such weather as Mr. Hooper has during two-thirds of the year. When September and October come on, even the best of our queens take more time after their maturity for mating; and in October there are only occasional days when the weather is suitable for drones and queens to fly, in which case the time of their mating is wholly dependent on the weather.

At the present time, after years of breeding from the best queens and along the lines given, if we put the standard for a good nectar season as 100 pounds, very few are the colonies which give less than 80 lbs., and equally few are those which give more than 120 lbs., all colonies being given the same attention by the one who "leaves no stone unturned" that success may be attained. With a year such as Dr. Miller had in 1913, these figures might be easily doubled, while in a very poor year 30 pounds might be the standard, with 20 lbs. for the poorest and 40 pounds for the best.

In this striving, and in a measure attaining, has come a whole lot of pleasure, far ahead of gossip at a country store, which so many consider necessary as a "rest from their labors."

Borodino, N. Y.

THE LACK OF A STANDARD OF MARKINGS TO DETERMINE THE DIFFERENT STRAINS OF ITALIANS

BY H. G. QUIRIN

There is no doubt in our estimation that the Italian bee has been improved to quite an extent; but we feel equally confident that there is still plenty of room for improvement. The progress toward a better bee has been rather slow—the chief reason, in our estimation, being that nearly all queen-breeders have a particular standard toward which they are working. The qualities considered as most important by one breeder may not be considered as such by another. A bee best suited for a southern climate may not be the best for our northern States, and vice versa.

Mr. Hooper makes a statement in the latter part of his article with which but few breeders in the United States will agree; at least we don't quite agree with him where he says that those virgins which mate on the tenth, eleventh, and twelfth days generally turn out to be drone-layers, or start laying drone eggs before they commence to lay worker eggs. We know nothing about the weather conditions in Jamaica. Probably the weather does not interfere with the natural inclination of the virgins to the same extent it does here; but in our own experience, where nice days are the rule, virgins will mate (the majority of them) in from six to nine days. A small per cent will mate both before and after that time. On the other hand, where weather conditions interfere, or where a virgin is otherwise prevented from taking her flight, she may be mated considerably after the twelfth day, and turn out to be as good and long-lived as any queen. However, circumstances alter cases. Where a virgin is kept in a cage till ten or twelve days old she may turn out to be a failure; while the same queen, if kept in a nucleus and prevented from taking flight for two weeks merely by inclement weather, has a much better chance for becoming a good queen.

An old beeman from whom we got our first pointers on bees many years ago (he was a doctor and a close student of nature) told us that he would a little rather have queens reared so late in the fall that the young queens would not begin laying till the next spring. When we asked him why he preferred such queens he claimed that they were hard-

Mr. and Mrs. John Stevensen among their bees in Everton, Mo.

ier. We can not say whether he made sufficient experiments along this line to know, or whether he simply held to this as a theory. In our experience we can not recall that we have ever noticed any difference.

From a theoretical point of view a hardy, long-lived queen ought to produce long-lived bees. The longevity of a worker bee depends upon the disposition of the colony, to a great extent. The workers of a nervously disposed colony are almost always shorter-lived. They may be out mornings somewhat earlier, and possibly out later evenings; yet every touch of their hive brings them boiling out; every ray of sunlight seems to bring them forth in quest of stores. When it comes to wintering here in the North, such bees won't winter as well as the quieter bees, the main reason being that they won't cluster as closely. They have a sort of tendency to spread out over the combs more than the quiet bees. It is our candid opinion that the lack of longevity in some bees is due to their foolish habits rather than to the lack of some inherited quality from the queen, such as physical hardiness.

Bellevue, Ohio.

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IMPROVEMENT BY SELECTION IN BREEDING IS GRADUAL

BY R. M. SPENCER

Many articles have been written on the subject of the best bees, the rearing of queens, etc., all of which lead up to the same point—the production of the most honey. We are all well aware that there are certain races of bees that cap their honey whiter—for example, the blacks; others that swarm considerably—the Carniolans; a cross of the blacks with some other race like the Italians makes a better bee for the production of fancy comb honey, while the Carniolan is a better bee for increase on account of its tendency to swarm. If the producers were all running for extracted honey there would be a far greater gain in the purity of the bees in the country, owing to the fact that black stock would be almost eliminated. A race of bees that will gather more honey is desired by the extracted-honey producer; and thus a territory where extracted-honey production is the rule is the best for rearing pure queens.

As Doolittle says in his department in the January 1st issue, there is no race that excels the dark Italians for honey-gathering qualities, and there is no question but that these bees are the ones for the extracted-honey producer. The question, then, is how to produce mothers from these queens which the apiarist buys from the queen-breeder who is breeding from the best Italian stock.

All honey-producers know that there is a great difference in the production of honey from different colonies in the same yard bred from the same mother, and this difference can not always be accounted for, even by the most experienced apiarist or queen-breeder. If it were possible to do so the poor queens could be superseded at once, and far more headway made, as in poultry-raising, for instance. This brings us down to the proposition of breeding from queens that produce workers that make a certain average in a yard.

Years ago I had a certain colony that gathered seventeen ten-frame supers of nine frames each of extracted honey, which supers averaged about 30 pounds of honey each. The average yield in this yard was about 200 pounds per colony. Any breeder knows that, if I had reared 100 queens from the one queen whose bees made such a record, it would have been doubtful whether I could have secured one that would have equaled the original colony in honey-gathering.

The most practical plan for the apiarist is to use any one of the well-tried methods of rearing queens, and select several queens to rear from, whose bees show better honey-gathering qualities than the average in the yard, and also drones from colonies showing better honey-gathering qualities, thus making a small gain each year. Too little attention is paid to the drones when breeding is considered. I expect to see the day when drone brood or drones will be shipped by queen-breeders to apiarists for the purpose of providing superior drones for the mating of their queens.

HOW TO PREVENT THE LOSS OF YOUNG QUEENS IN MATING.

The mating of the queen after she is hatched has been one of the hardest problems, for so many of the young queens are lost. It is usually supposed that the missing queens are caught by birds, or that they enter the wrong hives and are killed. A year ago I made some careful experiments to see what proportion of queens became laying when requeening by giving cells due to hatch within 48 hours after the old queens were removed. In each of 100 hives

I gave the bees a cell as soon as the old queen was removed. Out of the entire lot, less than one-third became laying queens. After this experiment I again selected 100 colonies and gave the bees a cell *three days* after the old queen was removed, cutting out all the first cells started by the bees. Out of this lot about half became laying queens. Once more I selected 100 colonies, but gave the cells *eight days* after the queens had been removed, cutting out all cells started by the bees as before. Out of this lot fully 75 became laying queens. In each test the queens hatched in over 95 per cent of the cells given, showing that the loss came after the queens emerged.

After the bees once find out the loss of their queen, they start preparations to rear another. These preparations are hardly started within 48 hours when the young queen hatches if the cell was given at the same time the old queen was removed, thus causing an abnormal condition, bringing about the destruction of the virgin by the workers. When the cells built by the bees at the time the old queen was removed are left until they are nearly ready to hatch and then destroyed, and the new cell given, every thing is normal and the virgin queen is accepted at once. Every apiarist knows that the loss of virgins when mating from parent colonies that have swarmed is not very large.

Being an extracted-honey producer as well as a queen-breeder I will say that, judging from the experience I have had in this section, the pure Italian stock is the best, and I have made a gain in the average colony by breeding from this stock. These bees are more resistant to disease, and gentler to handle. No mistake can be made by breeding from the best Italian stock obtainable, and " staying with it."

Nordhoff, Cal.

SOME INSTANCES OF STRIKING VARIATIONS IN QUEENS REARED UNDER LIKE CIRCUMSTANCES

BY J. B. CASE

An article on queen-rearing, to be of value, must not be the mere opinion of the writer, but must be based on the experience of one or more persons. Some important inventions, methods, and plans have come through a mere hint that, perhaps, the giver did not profit by. So, while I may have nothing new, yet it is possible that some one may get a hint that may set some train of thought in motion that may result in something valuable.

When Gleanings was a quarterly I had two or three stands of bees in New Jersey. As they increased I found that some colonies gave much better results than others, although, so far as I could see, all had an equal chance. I had a buckwheat location; but my management resulted in pure Italians giving more honey than blacks or hybrids.

In 1881 I paid an extra price for the colony that had made the most honey the previous year in a yard of some 60 Italian colonies. This colony was very strong, and the bees evidently knew that the queen was failing, as they built five cells and swarmed when apple-blossoms were open, the old queen being lost. As I was desirous of getting as many queens from the stock as possible I formed nuclei by breaking the colony up, and succeeded in getting five purely mated queens. The rest of the season was very poor, and these nuclei went into quarters weak in bees but with plenty of stores from buckwheat. They were packed in thin nucleus hives inside my large hives on four combs of nearly solid sealed stores with chaff all around. All wintered well; and as soon as they became crowded they were placed in large hives with chaff on both sides of the brood-nest. Combs were added as they became crowded; and when the weather got warm the brood was spread, and combs of honey with cappings broken were inserted, and those queens laid"some." There were in Long Idea hives.

About the middle of June, No. 1 swarmed. The colony had 17 combs, with brood in 15 to the amount of 1100 square inches, actual measure. They were hived on eight of the best-filled combs of brood, and gave 80 lbs. of section honey from clover and 45 from buckwheat. The old colony gave 50 lbs. buckwheat honey in sections. The other four did not swarm. No. 2 gave 140 lbs. (had 1000 square inches of brood); No. 3 gave 125 lbs.; No. 4, 110 lbs.; No. 5 gave the average of the whole yard—about 97 lbs. Here were five queens reared under apparently the same conditions, and, so far as I could see, given the same chance, yet one gave a swarm and nearly doubled the honey that the other one gave. No. 1 gave excellent daughters.

I moved to Florida in 1885 on account of my health. In 1890 I had a nice little apiary with Italians from the old No. 1 stock. I concluded to rear queens for the market, and bought some good Italian queens for my poorer colonies; got a Doolittle breeder, and in 1891 offered queens for sale.

In 1894 I bought a breeder from Elmer Hutchinson that was a dandy. I sold Harry Mitchel, Hawks Park, Fla., 17 queens. The next year was the "banner year" for this part of Florida for honey. Mr. Mitchel reported that all the queens were good, and helped greatly to give him his large yield—an average of 380 lbs., I believe—but one had, by actual weight, given over 600 lbs. These queens were reared as carefully as I knew how, and the bees were managed by one of the best beekeepers of that or probably any other day. Why the difference?

A few years ago I sent one of the most prominent beekeepers of Texas six queens—untested. The next year he wrote me that one of the queens he bought of me was one of the best he had ever owned, and was so valuable that she ought to be used for a breeder; that she was extraordinarily prolific, and that her colony had made a surprising amount of honey. I arranged to have her sent to me. She was medium in size, but was the best all-around breeder I ever owned, as she transmitted her good qualities in a large measure to her daughters. Were *all* her eggs capable of producing good queens?

The six queens mentioned above were all reared from the same mother, within a few days, and under the same conditions as nearly as I could give them. There was no complaint about the other five; but what accounts for this one being so far superior to the others? Queens reared from the above queen, just before she died of old age, seemed to be just as good as those reared when she was in her prime. While an extra-good queen can not be told from her looks, yet the most satisfactory breeders I have had have been of good appearance, and medium to rather large. However, one "fancy" breeder that I paid a high price for was one of the poorest breeders or queens that I ever owned; but she was a beauty to look at.

A heavy honey-flow, when bees store honey around and on the cells, is not a good time to rear queens. Some of the poorest queens I have reared were reared during a heavy flow of honey. Some very large queens are worthless, while some very small ones are prolific; therefore size does not mark a queen's value.

From some cause some virgins—fine ones too—are very slow to mate when all conditions seem to be favorable. I think the slow ones account for most of the drone-layers. Perhaps poor drones are the cause frequently. Virgins delayed from mating on account of the weather are not so likely to be drone-layers as those that are slow from no apparent reason. Is the fault in the egg, feeding, or method?

I believe the following points are essential in order to rear good queens:

1. Use the best breeder available.
2. Use the best cell-builders in the yard.
3. Make the conditions, just as nearly as possible, to conform to the natural conditions when bees are contented and prospering, somewhere near the comb-building point, when bees are feeding their young lavishly, but not swamping them with honey.
4. Never use a larva that has been starved at some time in her existence, or that has not had an abundance of food of the right consistency, and destroy all larvæ not well fed, or that have had honey stored around the cell.

Briefly, I consider these to be important points in rearing the best queens. I don't know it all. Who does?

Port Orange, Fla.

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THE VALUE OF CAREFULLY KEPT RECORDS IN BREEDING

BY C. F. BENDER

I think that the breeding of bees is one of the most important matters connected with our pursuit. "Pick the best colony and raise all your queens from that" sounds very simple, yet I don't remember a season when I ever did just that—partly because I could never be sure which was the best colony, and partly because I feared the effect of in-breeding if I stuck too closely to one family. While it is not easy to choose the best colony, all things considered, it is not difficult, out of a hundred or two hundred colonies, to select a dozen or more that are far above the average. It is quite a help to have a large number to select from. When the bees are hauled to the outyards in the spring, all the best are left for the home apiary, as I expect to rear all my queens there; and those colonies that are not used for queens will furnish drones of the best quality.

In selecting a queen mother the amount

of honey stored is the first item. The dozen or so showing the highest yields are graded according to that; then those having serious faults are marked out. By queen-rearing time the choice has usually narrowed down to three or four; and if all seem equally good I prefer to breed from all of them. In general, all faults except bad temper and propolizing will help to reduce the yield of the colony, and so need not be specially noticed. For instance, swarming or bad wintering will usually put the colony below the average in storing, and so rule it out.

A system of records is a necessity if one is trying to build up a good strain of bees. A record must be kept of the age of each queen, the amount of honey produced, and the number of the colony from which the queen came. For example, my best queen the past season was marked on the record 32q11, meaning that the queen was reared in 1911, from brood obtained from colony No. 32. By looking over my records I find that a dozen or more sisters of this queen are still living, and that nearly all have produced exceptionally good colonies. Turning to the 1911 record we find that the mother of these queens came in like manner from 29q08; and we can trace any queen back and discover all her relationships as far back as 1899, when my system of record-keeping was begun.

If one is rearing queens to be used in comb-honey production it is necessary to keep track of the finish and filling of sections as well as of the number. Some colonies will store a lot of honey, but will put so much propolis on the cappings that the honey must be sold for No. 2. Some will make a start in every section, even in a light flow, and leave the majority of them unfinished or very light in weight. Others will start only a few sections at a time, and fill them full as they go. I had a weak colony the past season that gave 18 plump sections weighing a full pound each, 3 partly filled, and 7 with the foundation untouched. I regret that such colonies are usually below the average in the amount of honey stored.

Sometimes it is a strong temptation to use a queen whose bees are very gentle and beautiful, and only moderate as to storing. In such cases I often raise just a few queens from her, in the hope of getting one of her daughters whose bees have more energy. To some extent each one must value the different qualities for himself. I never saw a hive of bees that had *all* the good qualities in perfection, with none of the bad. Personally I dislike cross bees of all things, so a touch of bad temper cancels all merits for me. There is less wear on my nerves in working two colonies of gentle bees than one of cross ones, and it takes me quite a little longer to go through a cross colony.

With some fear of raising a storm of protest, I will venture to give my opinion of golden or yellow Italians. I have handled a great many so-called goldens. At one time I had an entire apiary of them, with queens from all the leading breeders of yellow stock. It is a matter of regret to me that I can not afford to keep them Their beauty and quietness on the combs are very pleasant to see. They defend their hives better against moth and robbers than any other bees I have ever handled, and I think they do nicer work in finishing sections than the common Italians. But as to quantity of honey stored they range from zero to moderate. I have had a few colonies that would hardly gather a living in a good season. Occasionally one finds so-called goldens that are good workers, but with a villainous temper, which I suppose comes from Cyprian blood. I have always found goldens, even the gentlest, very difficult to introduce queens to, the loss by actual count being three times as great as when introducing to common stock.

A queen can not usually be considered tested for honey production before she is two years old. I never like to give a queen credit for good work until all the bees in the hive are of her blood. This does not usually occur before the end of the first season. The second season is the real test of her worker progeny, and we begin to use her as a breeder about the beginning of her third laying season, or the end of her second year. I remember only one case where I was able to use a breeding queen at one year old, on the strength of an unusual record made on the fall flow. I have some prejudice in favor of breeding from younger queens if we had any way of deciding which ones to use.

I like to buy a few queens each year for the sake of introducing new blood, but never use them or their descendants as breeders unless they prove superior to my original stock, which has not happened lately. I have bought no imported Italians for many years, as I have always found them inferior for comb honey. Of other races than Italians, I shall say nothing in this article except that I no longer keep them.

I have said nothing of selection for hardiness or resistance to disease, because these things largely take care of themselves. If you want hardy bees, expose them to hard conditions, and only the hardy will survive, of course. But I have never done

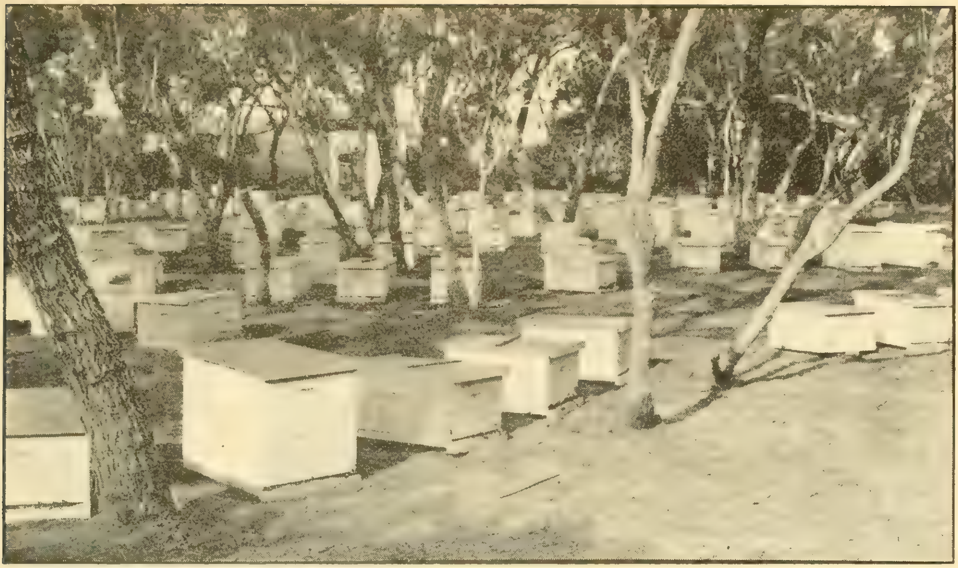

FIG. 1.—B. M. Caraway's apiary of 175 colonies all ready for the honey flow. The uniformity shows the result of breeding.

that, and don't think I ever shall, except where the hard conditions come naturally and can not be avoided.

Some think that swarming, stinging, propolizing, etc., are merely signs of energy, and that we must put up with such bad qualities if we are to get good workers. If I were going to buy a mule I would hardly pick a vicious kicker in the hope of getting a good work animal. Kicking and stinging are both manifestations of energy, to be sure; but in both cases it is energy misapplied, and our aim in breeding bees is to get the living force of them applied for our benefit.

Newman, Ill.

WHAT I REQUIRE IN A BREEDING QUEEN

BY B. M. CARAWAY

At the outset I wish to say that I have put more thought on breeding for improvement than on any other phase of beekeeping. Every thing centers around breeding, and around breeding centers the queen and her subjects. For one I believe we can improve bees and build them up to a higher degree of efficiency. To prove this I have been selecting my breeders for several years past with this in mind. I select the colonies that store the most surplus honey; and as I have over 400 colonies to select from I have an excellent chance to get the best. All that make a high record I mark, and from these record-makers I select the queens that come nearest my ideal.

I want a breeding queen to be yellow, of good size, and slightly slender rather than with too thick an abdomen. The queen that is a trifle slender is, as a rule, the most prolific; and a queen to be a breeder must be prolific. Her bees must be evenly marked, must show three yellow bands, must be uniform in size and color (I prefer them of medium size), and they must be gentle. I would not use a queen for a breeder if her bees were bad about stinging. I prefer to have the bees cap their honey with an air-space under the cappings, as this gives the honey a much finer appearance.

The final test comes after the bees from such a queen have graded well in all the above points; and that test is that the queen must be able to duplicate herself in queens—that is, the larger per cent of her daughters must be prolific, must have a slender abdomen, and be yellow. It does not matter whether they are yellow to the tip, but they must be mostly yellow. I select the mothers of the drones with the same care that I select the mothers of the queens. This is very important.

Did you ever notice how much bees in the same hive vary in size? A queen that produces bees of all sizes does not suit me for a breeding queen, for it could hardly be expected that her queens would be all of the same size. It costs a queen-breeder no more to use a breeding queen that produces queens of regular size and color. However, no one must expect to get all good queens of regular size and color, even from the best breeder in the world, unless the cells are built in a colony that is full of young bees; and they must have a natural honey-flow or else one as near natural as possible, brought about by stimulative feeding.

One colony should not have more than 18 cells to build at one time. The bees will build more than 18, but some of the young queens will probably be undersized or off color. Furthermore, unless the cell-building colony is strong and composed of many young bees, even with 18 cells there may be some undersized virgins. This condition will be found more often in case of a cell-building colony that has too many cells to build at a time. The bees can not care for all of the cells properly, and the outside ones suffer for warmth and food while the cells near the center have every advantage. Nearly always the small virgins come from these outside cells.

Fig. 1, accompanying illustration, shows one of my apiaries—175 colonies in all—and they were ready for the honey-flow. Every hive was full of bees from top to bottom, and from one side to the other, excepting a few containing nuclei that I had formed a short time before for increase. This proves that it is worth while to select a queen for better bees.

I much prefer that all virgins should be mated and laying by the time they are ten days old, and not over twelve at the most. Virgins that are not mated before they are twelve days old make poor queens, as a rule, and are likely to be drone-layers, or else will be superseded in a short time. This is not always true, but I believe it is the rule.

FIG. 2.—A neglected colony in a neglected hive is not a good business proposition.

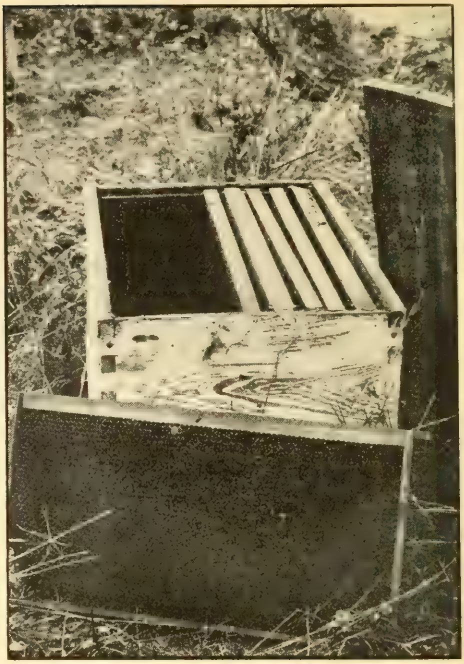

FIG. 3.—The inside of the hive shown in Fig. 2. A mere nucleus at the opening of the honey-flow is not in condition to do more than build up to full strength by fall.

In any apiary where the colonies are headed by queens that are reared from any queen that gives pretty bees regardless of other important qualities, the result will be about as follows: One-third of the colonies will get a good crop of honey, one-third will get about half a crop, and the other third will just barely live, and may have to be helped by the good colonies. I do not think such bees pay. In such a case I would recommend the purchase of a good breeding queen from some queen-breeder that has good bees, and head all colonies with good vigorous queens reared from this one breeding queen. There will then be another story to tell the next season. Of course, the virgins must be mated to good drones. There may be a few queens in the last class mentioned above that will prove to be very good queens the season following; but I do not advise placing much dependence on them. I would recommend superseding all such queens.

Figs. 2 and 3 show how some people keep bees. Can any one expect such a little colony to get any surplus during the next honey-flow? The bees will do well to build up to a full colony and get into condition to go into winter quarters the following fall. No matter how good the queen is, she could not possibly build up so small a nucleus to be ready for a honey-flow in the spring.

These pictures also explain the great difference in the amount that some colonies store. All must be strong if one expects to get any surplus honey during the honey-flow. The colony that has plenty of good winter stores and some left over when the next honey-flow arrives is the one that will make the most surplus. Such a colony is in ideal condition to winter perfectly and be ready with the "tub right side up" when the next honey "rain" comes. This is the kind of colony that counts, and better breeding helped to make it what it is.

After breeding by selecting I find that the poorest of my colonies are ahead of the best of those belonging to beekeepers who have not paid any attention to the question of breeding. Yes, every once in a while some one says that we can not improve on the average strain of bees—that the bees will revert back to the starting-point, etc. I do not find that this is the case after ten years of careful selection from the best. When I first started I had little black bees. Later on I ordered several breeding queens from the most noted queen-breeders in America. I also got some imported queens, for I wanted the best that money could buy. Please understand that I am not trying to breed a better race, only a better strain of the old three-banded Italians.

Mathis, Texas.

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SUCCESSFUL BREEDING OF QUEENS DEPENDS ON A GOOD MANY THINGS

BY W. D. ACHORD

A queen reared from the egg or from the young larva, in a full-sized cell, and supplied with more royal jelly than she will consume, I call a normal queen. Such queen, I contend, will give good results in honey, and she will live, perhaps, two or more years. She will also be large and strong. An egg or larva of the same age in a *small* cell supplied with more royal jelly than can be consumed will result in a small queen. Nevertheless her colony will give good results in honey, and she will live, perhaps, two or more years. An *old* larva in a full-sized cell, supplied as above, will result in a full-sized queen, but her colony will be no good for honey, and she will live but a short time. An *old* larva in a *small* cell, and *not well* fed, will result in a queen not so large nor as good as the last one mentioned, and she will soon be dead. What is worse, oftentimes the bees will fail to supersede her successfully. The last two queens mentioned will not commence to lay as early as the first one. These conditions often prevail when colonies are left to rear their own queens.

In the foregoing I have ignored the stock or strain of bees. Do I believe there is a difference in the stock or strain? Yes, I believe that "blood will tell" in bees as surely as in people, horses, or hogs—*if* we can control the mating. There are a great many things for a queen-breeder to remember when trying to produce nothing but good queens—the stock to select, the way the work is done, the locality, etc. Here I confess that I do not confine my practice to noticing all the minor details when selecting my queens to breed from. I have five outyards, 600 colonies in all, which I run for honey. On the hives I mark the age of the queen, the amount of honey taken, whether the colony tried to swarm, etc. This I have done for the last three years, and from these colonies I select the queens to use in my queen-yard at home for drone mothers as well as for queen mothers.

In color I prefer the dark three-banded bees, and they must not be wanting to sting all the time, though I do not expect to rear a stingless strain. I find that, if bees do not have energy enough to resent an insult, they do not have energy to gather a big crop of honey.

Cell-starters, finishers, and nursers must be two-story colonies, the hives being filled with bees from top to bottom and side to side. Not all colonies in the same yard are the best cell-builders. On this account poor queens may be reared if one does not select the cell-builders. The larvæ must be young, and supplied with more royal jelly than they can consume.

Nectar must be coming in every day for best results. I much prefer natural nectar to artificial feeding. Some localities are good for honey but not for queen-rearing. Others are good for queen-rearing and honey, while still others are good for queen-rearing but not for honey. It is also true that some are good for neither (this is something that I have experienced as well as read about). A commercial queen-breeder should have a good locality for his business or else quit the business.

Fitzpatrick, Ala.

J. P. Moore, Morgan, Ky., the well-known queen-breeder and honey-producer.

J. P. MOORE AS HIS ASSISTANT SEES HIM

BY J. E. JORDAN

To the readers of GLEANINGS who have not had the pleasure of knowing Mr. J. P. Moore, the queen-breeder, I will try to give a correct idea of him. If anybody should come in at the Moore farm between the hours of sunrise and sunset, and want to talk to J. P. (as he is known) he would have to keep moving all the time. He is on the go constantly, and can keep at it longer than any other man I ever knew. He is 53 years young, and looks about 38—hair slightly twinged with gray, and inclined to curl.

I really believe the reason for his activity and youthful appearance is on account of his good care of his stomach. Fruits of all kinds, either cooked or uncooked, come first in the morning and last at night. Wheat, cooked and uncooked, is also a favorite with him.

Mr. Moore does not have much to say to any one; but when a visitor begins to talk bees he has hit a subject that he can talk on from morning till night. It is a hard matter to ruffle his temper. He is the best-natured beekeeper you ever saw. Why? Because he has the best-natured bees that you ever saw.

The secret of his success is due to his ability to *keep at it* so long at a time. Cleanliness is another of his great traits; and every queen that goes out or every can of honey that is sold, may be depended on in that line.

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THE DANGER IN BREEDING EXCLUSIVELY FROM ONE STOCK

BY W. A. H. GILSTRAP

One of the first questions to puzzle the breeder of bees is a choice between breeding one strain of bees or bringing breeders from distant breeders. Like the Irishman, I say, "Of all the exthrames, give me the middle one."

To "line breed" fixes certain characteristics as no promiscuous breeding will. By taking a few first-class colonies and keeping their increase from crossing with other bees one will in time produce a strain of bees with a type different from any he is likely to find. It is surprising how many distinct strains are built up this way.

It might do to let the matter of selection stop at that if vitality could remain unimpaired without introducing new blood; but it is bound to cause trouble sooner or later. The first defect of continuous breeding of one stock, so far as I can learn, is a proneness to paralysis. Why? The nerves are deranged, just as in some of the royal families of Europe. Paralysis is a nervous disease. Some say in-breeding can not produce bad results in bees; but I am convinced it has seriously deteriorated one good strain of Italian bees.

My experience with bees has been confined to stock from one or more breeders in each of eleven or more States and Italy. The only varieties tried are Carniolan, Cyprian, Syrian, blacks, and Italians. The Italian from Italy and the yellow descendants of the same, bred by many in the United States, are so little alike as to be in entirely different classes for practical results. Both dark and yellow Italians have good and bad strains; but the best strains of either class are not necessarily best adapted to every locality.

It is possible that some localities may be found where some other bee is better than the Italian; but such locations are scarce, in my opinion. Ordinarily my belief and practice are to ascertain by actual experience which is most satisfactory—the light or dark Italians; then test individuals of promising stock before raising drones from them. Enough outside stock should be infused in the strain to keep up vigor; but radical changes should be avoided. While a breeder may be trying ever so hard to improve his bees he should remember that others are trying just as hard to improve the same general type of bee.

Modesto, Cal.

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IS THERE A TENDENCY ON THE PART OF BEES TO REVERT TO THE ANCESTRAL TYPE?

BY L. W. CROVATT

There was a case experienced in queen-breeding in my home yard last summer when eggs hatched in the hive domain of a golden queen, and grafted four days afterward by my own hands, developed several queens of a color as dark as the average German strain, and I have been casting about without satisfactory results for the logical reason.

Some may say that I got queens of black color from the German brood. This is not the case, though, for the cells were grafted. The colony from which the larvæ were taken was undoubtedly Italian of a very perceptible marking; and to clinch the proposition I will state that the cell cups were all on a stick—of the artificial or wooden type—and there wasn't an egg from the former German queen tolerated until I could breed Italians in the hive. In fact, I had removed every comb excepting a few which had well-sealed brood in them.

Now, what I want to know is this: Could the golden queen from which I was grafting have in any manner, through a previous generation, been by blood related to some German race? If so, would there have been such a sudden and violent reversion of type, and the young "mother bees" have so changed in color from the time of grafting to hatching as almost to be mistaken for a German?

Candidly, the thing has stuck in my mind, and I have often studied over the proposition; but it is seemingly no clearer to-day than it was when, in the mild mid-afternoon sun of the balmy summer day in Dixie, I removed my queen-nursery cage from the cell-building colony. The cells had been placed in the Titoff nursery cages on the eighth day to avoid loss, as I was busy with other matters and hardly expected to reach the ripe cells in time to prevent a youngster emerging and "wrecking" the remaining cells.

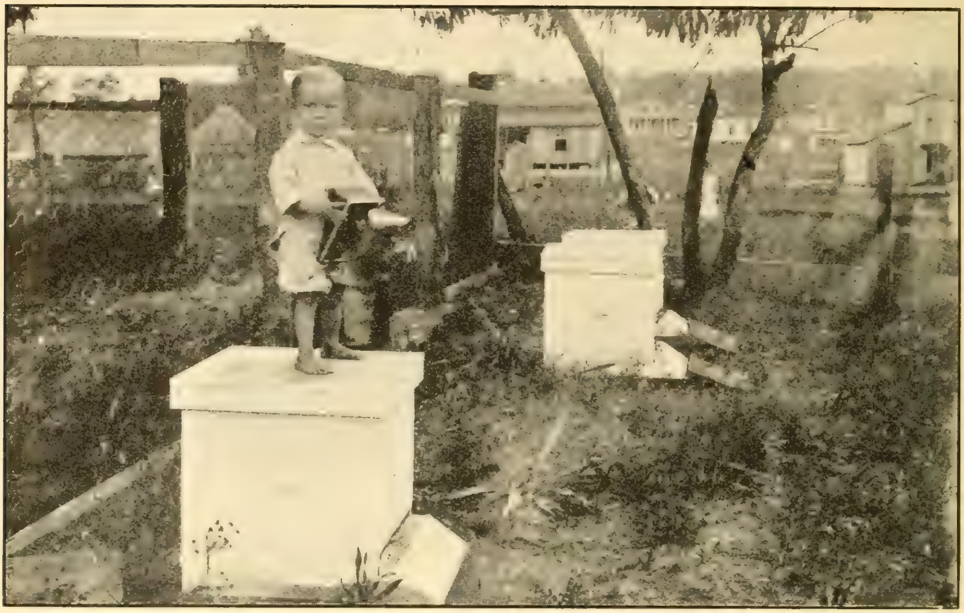
Surely it looks like atavism beyond peradventure; but who is qualified to say if this is correct?

Savannah, Ga., Feb. 11.

[The above was referred to Dr. Miller. His reply follows.—ED.]

So far as I know, there is no reason why atavism should not occur among bees as well as among other living creatures. It might also be expected to occur more readily in your golden stock than among three-banders, since golden stock is something comparatively recent, and not so nearly a fixed type as the three-banders. Moreover, it is more likely that in previous generations some black blood had worked into the golden than into the three-band stock.

You do not say positively; but from your saying "several queens" I take it that all the queens in that particular lot were dark. I hardly think atavism is likely to occur in such a wholesale way—more likely there would be a single one of the lot showing variation.



Uri Hammond, Vivian, Louisiana. Master Hammond has "kept bees" in two States.

You speak of "a sudden and violent reversion of type . . . changed in color from the time of grafting to hatching." I do not understand that a change occurs during that time from atavism, but rather that atavism dates back to the earliest time of the germ. And yet it is quite possible that the change might have occurred in color during those few days; for cool weather, scant food, or some other circumstance may sometimes make the royal progeny of a pure Italian queen quite dark in color, when her previous and subsequent progeny appears as yellow as herself. But that's not atavism.

After all this has been said, it remains an open question whether there was any black blood at all in the case. There may or there may not have been. You do not say, for you say nothing about the worker-progeny of these dark queens. And that's the deciding factor. If the worker-progeny be mixed as to the matter of yellow bands, the queen can not claim to be pure, no matter how yellow. If the workers are uniformly three-banded, then the queen need not hesitate to claim purity, be she black as night. Some queens direct from Italy are as dark as queens of black blood, but their workers are all right as to color.

You may have had a case of atavism; but it is not at all proven, and is quite doubtful. C. C. Miller.

Marengo, Ill.

FOUR HUNDRED QUEENS FROM ONE COLONY

BY ARTHUR C. MILLER

In a recent issue of Gleanings I spoke of one colony of bees producing about four hundred fine queen-cells in one season, and being a rousing colony at the finish. The editor tells me that many of his readers want the particulars, and no wonder they do; for either I told a "whopper" or else have something worth dollars to the fraternity.

It *is* worth dollars to all who will master it; but I tell you at the start it is not for the careless man nor for the man who fails to do the right thing at the right time in the right way. On the other hand, it calls for less work, less care, and less attention by many times, than it does to produce the same number of cells by any other system. Not only is its cost in labor much less per cell, but its cost in colonies is very markedly smaller.

According to commonly accepted belief, a colony will not (or can not) construct more than about one dozen good cells at a time, and should never be used to construct another batch until it has been returned to its brood and allowed to remain thereon until well re-enforced by more young bees. This is speaking of the general custom—individual systems, mayhap, modifying it slightly. In other words, it takes the work of about thirty colonies to produce four hundred cells by commonly accepted methods; or using one colony six times during a season means that five colonies must be withdrawn from honey-producing, and be devoted to the task of raising four hundred queens. The cost in dollars and cents you may figure for yourself.

The improved system is any thing but new in most of its details; but it does have a few features peculiar to itself, and on these features its success to a considerable extent hinges. It is known hereabout as the "Fuller system," having been worked out and brought to success by Mr. O. F. Fuller, of Blackstone, Mass.

It is based on the old idea of having cells built in a colony with a laying queen, cells and queen being kept apart by queen-excluding metal. Mr. Fuller's early efforts followed much the lines laid down by Mr. Sladen; but he soon began to change and modify in his efforts to secure more uniform results, and it is to some of these changes that his success is due.

His mechanical appliances are few. He uses a double-walled chaff-packed hive wide enough to hold twelve frames, using this size for convenience in manipulation. The hive has a tight partition of queen-excluding metal so placed as to make one compartment ample for easy handling of four frames, and in this chamber the queen is kept. Furthermore the entrance to this part is protected by the same sort of excluder metal. The entrance to the cell-containing part is *not* so protected, and in this feature his system is the opposite of all the others, and to it I ascribe much of his success. Reverse it and his success is no better than by any of the older plans of a similar nature.

His other appliances are the common wooden cell-cup holders, metal bars punched with holes to carry the wooden cells, and frames in which these are swung, so ready inspection and handling are secured. So much for the equipment.

The procedure is as follows: The colony is made *strong* if not already so. It is strong in the fall, has a young queen, and is wintered with the dividing partition out, so usually it is booming in the spring. If it is not, it is made so by the addition of brood or young bees or both. When about ready to begin cell-raising, the partition is put in, and the queen is shut into her compartment and given four combs, choosing those which will give her some chance to lay, but not much. On the other side are several combs of brood, honey, and pollen. At the start of the season Mr. Fuller sometimes helps matters along by filling this compartment with combs of emerging brood by adding two or three from other colonies. At the end of a week all eggs in the "cell chamber" have hatched, all larvæ are too old to be troublesome, and some queen-cells may have been started. The combs are carefully examined, and all such cells are destroyed. One comb is now removed, and a frame holding the cell cups put in its place. In it are two dozen or more of the wax cups.

Now begins the important part; and unless these details, which I will italicize, are carefully observed, failure will pretty surely follow.

Put the cups at least *one comb-space from the partition*, and *never* fail *to have a comb between cells and the partition.* In a few hours, more or less, a dozen to twenty of the cups are grafted and returned to their places, and *every other day* more cups are grafted. As they reach maturity they are slipped into cages, hung in the same chamber, and the cells are allowed to hatch there if no nuclei are ready. The presence of caged virgins has no effect on the cell-building. As the season advances and the number of cells increases more room is given in the cell-chamber, if needed, by removal of a comb or two. If additional frames of cell cups are used, be sure to have a comb of brood between it and the other cell-cup frame.

As combs in the cell-chamber become empty of brood, they are exchanged for combs of sealed brood, either from the queen's compartment or from some other colony. *Combs containing eggs or young larvae must never be put in the chamber with the cells.* To make this easy, Mr. Fuller is accustomed to keep a few frames of brood in an upper chamber of some colony, and over an excluder, getting them from the queen's chamber or from some other colony.

The manipulation of the queen's chamber is important. *She must never have much room for laying.* Mr. Fuller often had trouble in the colonies until this was learned. In other words, *the colony is always full of young nurse bees and short of babies to feed.* Supersedure conditions!

To do this to the best advantage, it is necessary to draw some of the sealed brood from other colonies, so that, strictly speaking, one colony does not alone and unaided do all the work. But a comb of brood now and then, taken from a nucleus, matured over an excluder and put into the cell-building colony, is really turning waste material to profit, and it does not take many such during the season.

Sometimes a colony refuses to "play the game," and has to be discarded for another. Why they behave so we do not know.

If honey is coming freely the cell-building colony will put up a surplus, and a heavy flow is really a nuisance, as it clogs the combs of the queen's part as well as the other. If the flow is very light or intermittent, feeding is necessary. Mr. Fuller keeps a candy-feeder on top of the queen's compartment, all the time, as a safeguard.

In such hives he has raised fine cells in April and as late as mid October. He has had as high as eighty cells in such a colony at one time.

The cell compartment is the very finest place to keep drones. He had several hundred in one hive on the 21st of last December. I'm of the opinion that the presence of drones, and their liberty to fly, is a great help in his system, and I know that I like to have a dozen or more in each of my baby nuclei. Drones are more of a help to us than we have supposed.

Providence, R. I.

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THE CHIEF POINTS TO CONSIDER IN THE SELECTION OF A BREEDER

BY J. F. ARCHDEKIN

I have made no new discoveries in the art of queen-rearing, having confined my efforts to orthodox methods. Of course, I have had my share of novel occurrences which call for special treatment; but I will pass to more important things.

The first thing to consider is the breeder. Briefly, a first-class breeder is a heavy layer. Her colony winters well, the bees are gentle to handle, and are hustlers. These are the principal points to keep in mind. If these can be combined with some others, so much the better. The offspring of some queens cap whiter than others; these are to be favored. Some colonies propolize more than others. This trait is not to be favored.

As to her personal appearance, the queen should be fairly large, and should have a thrifty look. While she should be active she should not display this agility by running over on the other side of the comb while you are looking at her. Unless unduly disturbed she should continue laying while you watch her. She should be well marked, and the abdomen an even color throughout its length. If one has a queen which conforms to the above qualifications he may be sure he has something very desirable. I have reference to the Italian bees, although the above is probably true of most of the other races.

METHOD USED IN REARING.

After trying various methods for building cells I have adopted the upper-story system. As it is necessary to have a strong colony to get large well-fed cells and vigorous queens, the above answers the requirements perfectly. A double-story colony is bound to be strong. I use a queenless colony for accepting the freshly grafted cells. The grafting is done in early morning or late afternoon. The morning grafts are transferred to the cell-building colony in late afternoon, and the afternoon grafts changed the first thing in the morning. By this means I have been enabled to get a larger number of cells accepted than by any other method except in colonies which are preparing to swarm. These latter are not available all the season.

Should a cool spell of weather come early in the season the cells in the upper story will be safe, whereas they might be lost in the ordinary one-story hive. It is important (at least comfortable to the operator) to use gentle colonies for cell-builders. I think this has some influence on the temper of the offspring of the embryo queens.

QUEEN INJURED LESS IN THE MAILS IF NOT LAYING HEAVILY WHEN SOLD.

For mating I use twin mating-boxes. The frames measure 5½ x 7 inches, and each side takes three of them. This allows one to keep a fairly large number of bees in each nucleus; and if there is a good flow these little colonies will often become honey-bound. On the other hand, if many of the bees are lost through following the queen on her mating-trip the loss is not serious and is more readily replaced than with full-sized nuclei. I have found these latter very bothersome about swarming out. Of course, the plan has its drawbacks, but so have the others. To me it is a method of turning out a first-class product at a minimum cost.

Queens mated in small nuclei will always ship well because they have never had an opportunity to become fully distended by heavy laying. Queens that are laying heavily are in grave danger of being injured in shipping if they are not slowed down by some means before being sent out. Then it is so much easier to find the queen in these little colonies that the time saved in caging amounts to considerable. It is very annoying to have to search any length of time for the queen when one is in a hurry. Taking it all around, I like the plan very much.

St. Joseph, Mo.

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QUEEN-REARING ON THE ISLAND OF CYPRUS

BY M. G. DERVISHIAN

Until within a very few years I obtained my queens from natural swarms only, and I used to have a large percentage of swarms every year in April and May. The majority of these queens were small in size, and weak. The last two or three years, with the help of GLEANINGS, I have adopted up-to-date swarm-controlling methods, and during two seasons I have had only two or three natural swarms from between fifty and sixty colonies. This improvement has been profitable, both for the production of honey and for vigorous prolific young queens.

Years ago the colonies which swarmed did not yield any honey, and those which yielded honey could not produce any queens—that is, they could not do both together. Under the present scientific methods I make one or two of my weak colonies queenless, and commence feeding. The bees start queen-cells which I destroy before they are sealed. I give cell cups grafted from my best colonies having fine long queens. The next day, or about thirty or forty hours afterward, I remove these cell cups into my breeding colony which I especially prepare for that purpose as follows: Early in May I create a very strong queen-rearing colony, and I change the unsealed larvæ from this with sealed brood from other colonies, so that in the lower story there remain two combs of honey and pollen, one on each side, two frames having full sheets of comb foundation, and six combs of hatching brood. I confine the queen of this queen-rearing colony to the lower story of ten combs with a queen-excluder. On top of this excluder I put another full-sized story which I fill with eight combs of hatching brood from other colonies. I commence feeding with thin syrup or (preferably) honey mixed with water. Two or three days afterward, when most of the brood has hatched, I insert in this upper story cell cups grafted from my best colonies having long year-old queens. (These cells were first accepted by other queenless colonies, and then transferred to this queen-rearing colony). I continue feeding regularly every evening.

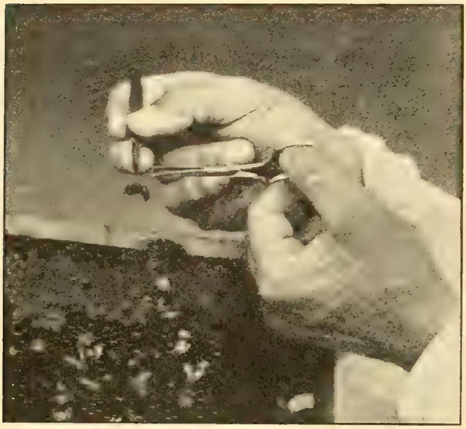
The number of the cells given does not exceed twelve, as I have reason to believe that, the fewer the cells, the better the results obtained. By accident last September I discovered that a moderate-sized colony out of which I had taken a queen started a single queen-cell, and for an experiment I did not replace this cell with one raised under the fore-mentioned method. When the cell was sealed I found it was the largest I had ever seen, and the resulting young queen was correspondingly larger. I intend to keep her for the purpose of breeding. When this colony started the queen-cell in question the bees were fed every evening.

Some of the queen-rearing colonies I divide into nuclei of three combs each, and give each lot of bees a queen-cell. I keep these nuclei about two feet away from each other, all in one place, and confine the bees in each nucleus for two or three days in order that they may not return to their old stands. On the third day after sunset, just before dark, I remove the wire screens from the entrances and put in front of each nucleus a board a foot square, slanting against the front in such a way that the bees when they come out may bump their heads against the board. Each board is painted a different color—red, white, green, blue, black, etc., the object being to make the queen and her escorts mark well their new home. I keep these boards in place for eight days. Before adopting this plan my percentage of loss of queens was great, but now hardly a queen enters the wrong hive.

I leave the queen of this breeding colony with three or four combs of her hive, and then refill the lower story and the top story with hatching brood from other colonies so that, in a few days, this breeding-hive again becomes crowded with young bees. After this I again give cell cups started by other queenless colonies as described above. As soon as the cells become ripe in the queen-rearing colony I remove them into the nucleus hive described, from which the queens are taken later on to be mailed. It is understood that the nuclei as well as the large colonies are all fed regularly with a small quantity of thin syrup every evening. I never sell queens from the nuclei until they have been laying for about twenty days, so that they will have laid a large number of eggs and I have had the opportunity of observing the sealed brood.

HOW I PICK UP QUEENS.

Formerly I used to pick up queens with my fingers as I was taught by Mr. Frank Benton when he visited this island many times in the 80's. For about nine years, however, I have been using a pair of watchmaker's tweezers, about three inches long, for taking up the queens by the wing, and for putting in cages or clipping. I have found the use of these tweezers more practical than the old method of catching queens with the fingers. Besides being more convenient, there is then no contamination by reason of any taint or odor to the queen; and consequently a queen that is clipped, for instance, runs less risk of being balled by the bees. The catching and clipping of the wings of a queen can be accomplished in three or four seconds. The queen, being seized by one of the wings, is held about an inch above the comb; then with the other hand the wing is clipped by the use of a pair of small scissors, and the queen falls back where she belongs. I have taught my sons to handle queens with their fingers, but they prefer the tweezers, as it takes less time and is easier. The bees do not get frightened as they sometimes do when one picks them up with the fingers.



M. G. Dervishian's method of catching queens, for caging or clipping their wings, by means of a jeweler's tweezers.

DRONE-REARING.

The selection of the best drones in a scientific queen-rearing apiary is of great importance. I have adopted a plan similar to that explained in "Scientific Queen-rearing," by G. M. Doolittle. I have a drone-cell comb-foundation machine with which I manufacture enough comb foundation to supply all my colonies with a full sheet. This I insert in the middle of the brood-nest; and these drone combs, when built, are filled with drone eggs from which I get fine large drones from April to September inclusive. I take great pains to destroy all drone brood reared in worker cells or any from unfertilized queens that may have been laying. I also take the necessary steps to prevent laying workers.

Drones of small size, if any exist by accident, are at once trapped and destroyed. Such drones result on account of the absence of sufficient drone comb in the hive.

Nicosia, Island of Cyprus.

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DOES A QUEEN MEET A DRONE FAR FROM THE APIARY?

BY G. W. HAINES

My son and I, with a little help, are running six apiaries. It has always been my practice to keep a fine strain of bees that are good honey-producers, and to work for the extra ton of honey, letting the other fellow raise and sell the queens. We often hear of a beekeeper who is looking for an out-of-the-way place to raise queens—some island or some forsaken spot where neither man nor bees are found.

To my way of thinking, a queen on her flight never gets out of the lot where the bees are kept. At my home apiary I have kept from 200 to 220 colonies for a number of years. Here I raise a few queens for my own use at home and for the out-apiaries. I have tried all ways, and have spent a lot of time and money in small mating hives and boxes, but I am now using a regular eight-frame Langstroth hive with a division-board in the center, and three Langstroth frames on each side. The bees on one side use the entrance in front, and those on the other the entrance in the back. At any time honey or brood can be given either nucleus from any other hive, and in the fall the two nuclei can be united. Of late I have had about fifty nuclei for queen-rearing; but my son, who has had an unusual attack of the bee fever, thinks we ought to have 75 next season and keep more bees.

My home apiary, with our 200 colonies, is at the bottom of a large hill that slopes to the north. By standing at the south side of the yard, and looking north against the hill when the sun is just right at my back, it is a surprise to see the great cloud of bees as well as of drones in the air. On several occasions, when queens were about to mate, I have watched them in this way. Last summer I called my son to watch a queen, and soon three came in sight at one time with their flocks of drones. It reminded me of a flock of fifteen or twenty blackbirds flying around the lot. The queen in each case was ahead, and the drones all flying very close after her at a far greater speed than that attained by the workers. They would fly back and forth around the yard; and whenever they circled high enough to get above the hill we could not see them against the bright sky.

I wish that some of the queen-breeders would give this matter a little time if they have a yard located just south of some big hill or woods. A building or a few trees do not afford enough of a background, as the bees are soon out of sight.

If a queen-breeder takes the necessary care in the selection of his drones as well as his queens I will venture that a queen will seldom get out of an ordinary field where bees are kept, if there is a crowd of drones flying every fine day.

Mayfield, N. Y.

[If there is a cloud of drones flying near the apiary we would grant that a queen would seldom go very far away from the apiary to mate; but suppose there are a good many other colonies within a mile, say, of the apiary in question. Can you be sure that the cloud of drones in the yard is made up entirely of your vigorous stock selected? As we have reported before, we have observed drones collecting in "schools," and if there is very much of an uproar when these noisy fellows get together it is quite possible that other drones from hives located within a mile or half a mile may be attracted thereby. In a breeding-yard composed, say, of Italian stock exclusively, but located in a territory where there are numerous black colonies in small apiaries near by, the proportion of purely mated Italian queens is much lower than in the case of a yard that is more isolated.—ED.]

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ARE THE BEES OF AN EXTREMELY PROLIFIC QUEEN AS HARDY AS THEY SHOULD BE?

BY DAVID ROBERTS

Can a queen be too prolific? It is evident that a colony must be strong if it is to do well, especially in the super. But what is strength? Is it always mere numbers? In my experience I often find my most populous colonies surpassed as to surplus by smaller colonies. As a matter of fact, "there is no gain without a loss;" and is it not possible that this surplus of numbers in the brood-nest may become a deficiency of energy in the super? Indeed, it will unless the apiarist interferes; and it is questionable whether, even after these bees have been distributed to the best advantage, they are of much value, as their energy has been greatly "diluted."

It is true that "in union there is strength;" but the strength of that union depends on that of its components. In the inevitable struggle for existence of all creatures does not an increase in the reproduction of the species indicate a decrease in the vitality of the individual? and can one not read in this extra egg in question a prophecy of earlier death to its occupant?

What causes this prolificness in the queen? One factor, and not the least, is in-breeding. It is a biological fact that mating individuals of distinctly dissimilar characteristics produces a progeny less prone to prolific reproduction. Would not, then, a cross between two strains of different characteristics produce the desired hardihood and longevity? It is true that prolificness would be retarded, and, possibly, beauty be lost; but what of it? Are these the vital factors which reimburse the beekeeper for his labor? Such a cross has been favored by the lights of beedom in the past, and is still advocated by many of no mean standing. However, as the first cross produces the salutary effect, the continued hybridizing is to be deplored, for it causes too great a reaction—that is to say, it tends too much toward sterility.

Instead of trying to eliminate this dissipation by the continued hybridizing of colonies already crossed, it would be better to select those from which to breed that do not show this riotous tendency at all—colonies that have established their worth as honey-gatherers; colonies that one knows fairly well, and that will respond to some general system of manipulation. Mr. Doolittle, p. 144, March 1, 1913, gives valuable hints on how to select such colonies, and I heartily agree with him.

Knox, Ind.

Heads of Grain from Different Fields

Few Goldens Found True to Name, but Those Few were Good Workers

It is to be regretted that there has been so much deprecation of golden bees in the columns of the bee-journals. First of all, I want to say that I am not a golden "bug." Always I want yields; and where my bees do not give yields they are discarded. Mainly the cause of the feelings against goldens is the breeders who persist in breeding for color to supply the demand for yellow queens and leave yields to take second place in the qualities of their queens. Some of the greatest beemen in the country prefer very yellow bees. Last year Dr. Miller's yellowest bees gave the best yields. However, that may not be the leading attribute in his bees, and I don't know that he advances any such theory.

Last year I spent about $100 buying golden queens of various breeders in the United States, mainly to see how yellow their product was, and to try them out for yields. I never bought less than six at once, and gave them a thorough trial. Of course, I did not try out all the goldens in the country, by any means. However, out of sixteen breeders I found just three whose queens would really pass for decent goldens, and all three of these strains proved good yielders. To me this proves too much breeding for color alone. Can any thing more surely kill the golden demand?

In querying advertisements, and writing for prices to these breeders and other beekeepers, I found a most lamentable lack of even common business decency in the answers. In one case I waited 22 days in the height of the season for prices of queens. The breeder lived 22 hours from me by mail, I found by investigation. Many dealers have told me that beekeepers are often very unbusinesslike in answering queries for them. Seemingly these men, particularly queen-breeders, are afraid to figure a little service cost against the gross profit made on their queens. (Several breeders wrote me letters containing misspelled words and mistakes—some on the typewriter that would have made me weep if one in any other business went after my patronage in such a manner.)

For my location, goldens are best. Three-banders are nearly as good. I have never tried other races of bees. However, it is lamentable that some breeders send out "goldens" which are hardly more than quite yellow three-banders. Goldens should be yellow all but the very tip. I never received goldens from reliable breeders which weren't so marked. Many times I know golden breeders are asked if there is Cyprian blood in their bees to give the color. There may be in some; but the breeder who can't breed up a yellow strain without Cyprian blood had better go out of business. Certainly he is selling a fake if he uses it.

Common sense will enable one to breed yellow bees by selection. However, they must be where purity of mating is insured. To my notion the yellowest queens should go for queen mothers, while the highest yielders among the yellowest should go for drone mothers. But never a breeder for either purpose should be chosen unless they are well above the average in yield. Patrons will pass up your "dark" queens sold for goldens when they are business-getters in yields. Drone mothers should be the highest yielders, for to my notion, as with chickens, the male line carries the quality of yield better than the mothers. Some breeders keep too many colonies in their mating-yards. There shouldn't be any more than are actually needed in the yard. There is too much likelihood of letting colonies go where there are too many, and where some breed undesirable drones. Every breeder owes that much to his patrons.

Fakirs exist because the buyers don't investigate their claims. The time is rapidly coming in beekeeping when the man who doesn't deliver the goods must get out. It is so in yields. It will be true in breeders. Fair business methods deserve patronage, and nobody knows it better than the fellow who once gets stung.

Plainfield, Ill. Kenneth Hawkins.

An Extraordinarily Good Colony

I had the best honey crop last year that I have ever seen in this locality. The bees just rolled in the honey in June and July. I had one eight-frame colony of red-clover Italians that would fill a 28-section super in four days when the white-clover yield was at its best. My crop for the year was 675 pounds from seven colonies, spring count. This one eight-frame colony made 17 shallow extracting-combs of honey and 168 4 x 5 sections, most of them fancy. I think that this queen is worth a lot to me. The same colony made seven supers of honey in 1912. The queen was four years old last fall, and the colony has swarmed but once, which was during the first year after I got her. On that occasion, for some reason the queen could not fly, and my son picked her up on the ground and put her in a cage until I came home. I took from the hive a couple of cells that I wanted, and destroyed the rest and put the queen back and she is there yet. She is not clipped, for she has good wings so far as I can see. She is the largest queen I have ever had.

During the four years that I have handled this colony I have been stung but once, and that was when I pinched one of the bees. When the frames are taken out of the hives the bees stick closely to the combs and do not fly around my face. They can be handled without veil or smoke.

There have never been any queen-cells in the hive except that one time mentioned above. All that I do to prevent swarming is to remove the ⅞ strip at the back of the bottom-board and put a piece of wire screen in its place during hot weather.

Elizabeth, Pa. Amos E. Meyers.

Breeding for Honey Instead of Color

While I am not an extensive beekeeper I breed for honey rather than for color. About the first of June I go through my yard watching the fronts of the hives until I find the one I want. Then I look inside to see whether the bees of this particular queen are gentle and evenly marked, also whether the combs are well filled with brood from top to bottom. Then I find the queen to see whether she is leather-colored with a bit of black at the tip. If so, all right. If not, I look further for one having those markings.

I prefer to have the workers go out of the hive like a bullet, and when they return drop on the alighting-board and hurry inside. Furthermore, I want a queen whose bees enter the super readily, whether producing comb or extracted honey.

Referring to the record of the colony in question I make sure that her bees winter well, and that they do not daub the sections with propolis badly.

It is just as important to have the mother of the drone show these good qualities also.

Cattaraugus, N. Y. Harold W. Scott.

Colony Fed Artificial Pollen Ahead of the Others

Rye graham flour may be used as a substitute for natural pollen. In the spring of 1913 I fed a colony of bees rye graham flour. This colony swarmed out May 26, while all the other colonies did not swarm until after June 10.

Adolph C. Rosenquist.

Parker's Prairie, Minn., Feb. 27.

Our Homes

A. I. Root

I pray that they may all be one, as thou, Father, art in me, and I in thee, that they may also be one in us, that the world may believe thou hast sent me. JOHN 17:21.

I am come that they might have life, and that they might have it more abundantly.—JOHN 10:10.

DOUBLING UP THE COUNTRY CHURCHES, ETC.

Perhaps we could leave out the word "country" and consider for a moment doubling up churches in general—city churches and all. Read the following:

Mr. Root:—We like your Home talks. We wish to ask you a few questions. Is the church of Christ celestial only, or is it a part of the world?

The Comforter is to guide us into all truth. How, then, can Christians differ?

Are not divisions carnal, and classed with the fruits of the flesh?

Do you justify the existence of sects?

Rev. W. L. Beers, of Topeka, Kan., it is said, killed his wife because she was a Catholic. Can you not pray to God for some light on this subject, and give us a sermon on unity?

Guilford, Kan., July 7. T. & H. SHORT.

My good friends, I presume you have read what we gave on the subject on page 659, Sept. 15. While I am hoping and praying that there may be a "doubling-up" instead of having a few more churches started every little while, I think I realize somewhat the difficulty of rushing things in this direction too fast. There are, all over the world, people who are, comparatively speaking, good and earnest Christians who probably will not be persuaded to go into this doubling business. I am inclined to think it is the old and gray-headed people, mainly, who stick so tenaciously to their own particular denomination. Some years ago in Northern Michigan my good friend Rev. A. T. Reed and I visited the homes round about Bingham, Mich., in the endeavor to collect the scattered Christians and revive the church in that community that seemed to have gone to pieces. The greater part of them absolutely refused to drop theological differences and unite in Christian fellowship. Almost the only hope was among the younger members of the Sunday-school who have never got hold of doctrinal points. With childlike innocence—that is, innocence of the things that our fathers and mothers had quarreled over—they came with enthusiasm, and in a little time the community that had open saloons and baseball on Sunday was made over. I told you that, during my recent visit, the saloon had died out for want of patronage, and a very good congregation met in that little Bingham church.

Now, my good brothers, let us be careful about hurrying matters to such an extent that we stir up again old disputed points. As things are now, I am inclined to think it better that there should be different denominations. You probably know how often good people differ in regard not only to theology but questionable amusements, etc. Some are loose in their ideas, and others are too strict, and quite a good many will tenaciously stick to unimportant matters. While this is true, is it not well, at least to a certain degree, for people who think alike to get together and hire a minister who believes and thinks as they do, but who are willing, notwithstanding, to leave minor differences, and go to work unitedly for temperance, for sanitary measures, for good roads, and for good government, etc. Our good friend E. E. Hasty, one of our old shining lights in bee culture, will be remembered by our older readers. He went so far as to insist that sects be done away with entirely, and let every man worship God according to his own notion. Let us accept the fact that there are almost no two people exactly alike. God, in his great wisdom and love, has probably thought best to make us different; and what would the world be—how could there be such a diversity of work now going on as there is, were it not for these differences? As it is, there are a multitude of different things for us to study up and work out. We can, each one of us, have a different hobby; and it is really a delight to me to see one man or woman take up one thing and another something else, and push it to its fullest development. For several years good people laughed at me, and were almost afraid to trust me because I was crazy on bee culture; and yet God has permitted me to live long enough to see our institution buy and sell honey to an extent that I would not have believed possible then. In spite of the high cost of living, and other difficulties that block our way, there is room enough for all, and peace and plenty for all, if we are only willing to reach out and accept it from the hand of the loving and gracious Father.

EMPTY PEWS IN OUR CHURCHES; A SUGGESTION AS TO THE CAUSE.

Dear Mr. Root:—I am enclosing a clipping from one of the New Brunswick papers which I thought might interest you. It shows that all of our preachers are not so busy reading ancient history or studying Greek that they forget that they are living in an age that has problems of its own. I wonder if the reason for the empty pew is not to be found in the fact that many of our ministers are so busy searching the literature of the ancients for brilliant illustrations and high-sounding phrases that they do not recognize the needs of the present day. I believe that, if our ministers would burn half their books, study the newspapers, and stick their noses out of their studies occasionally, they would begin to preach sermons that would hold the multitudes. At any rate, St. James church here was packed so that there was hardly standing room last night, simply because Rev. Mr. Yard had announced that he would reveal his discoveries, and the discoveries were those that concerned the people. Mr. Root, I believe that, if we had more such preachers—men who can fit religion into politics and everyday life, the world would grow better many times faster than at present.

HARRIS T. KILLE.

New Brunswick, N. J., Oct. 27.

My good friend, I have for a long time been "hungering and thirsting," if that expression is not too extravagant, to hear our ministers touch on things of the present day a little more. Just now, however, here in our Ohio home, as you may judge from the two sermons I have given in these Home papers, my wish has been gratified. Perhaps I should explain to our readers that the quotation alluded to by Mr. Kille comes from the New Brunswick, N. J., *Times*. The pastor mentioned, Rev. George W. Yard, said in his sermon, "A howl went up to the ceiling when I asked the ministers at a convention they held, to help me in this fight, so I started out single-handed." On Sunday and Sunday night he visited 80 saloons. Only 6 out of the 80 were closed up according to law. He tells in his sermon where he went, what was going on, and mentioned names. No wonder that St. James church was "*packed so there was hardly standing room.*"

Thou shalt not kill.—EXODUS 20:13.

We clip the following from the Cleveland *Plain Dealer:*

THE PENALTY FOR MURDER.

Twelve years ago a young tramp was found guilty of a most revolting crime. He had drifted from the east, a worthless derelict. An old and crippled watchman took pity on the tramp and repeatedly befriended him, sharing his meager lunches with him, and giving him shelter.

In return for this kindness the youth deliberately planned the murder of his benefactor. He waited till pay day, and then beat the old man to death with a coupling-pin, stole his money, and fled. He was apprehended, and charged with murder in the first degree.

The verdict of the jury was an utterly unjustifiable compromise—murder in the second degree. If the defendant was guilty of any crime it was first-degree murder; but the jury could not be brought to send him to death. The death penalty, as established by Ohio law, was responsible for a verdict which was wholly at variance with the facts. And yesterday, after having served a dozen years, the prisoner was released from the penitentiary, paroled by order of the Board of Pardons.

When I first saw the above I could hardly keep still. It comes right on the heels of the report of another murderer who has been pardoned. You may recall a temperance detective (Etherington) who was cruelly strung up by a drunken mob at Newark, Ohio. The leader of that mob has been "pardoned out" after serving only three years in the penitentiary. Has this young tramp, who seemed to have no scruples about murdering his benefactor, and a poor crippled man at that, been pardoned out, as we must look at it, to go and do the same thing again? The only excuse we have for such pardoning is that he had a good record for behavior during the dozen years. Now, if the daily paper had stated that he was truly penitent for his crime, had expressed sorrow and regret, and had started to lead a Christian life, giving reasonable evidence that he was truly born again, perhaps it might be well to pardon him out; but even then there is the record standing before the world as a precedent, and other men (and boys) seeing him get off so easily would be more likely to be tempted to do likewise. The paper does not tell us that his crime was committed under the influence of drink. We only read that he had been in the habit of going to that good old soul when he was hungry; and that was the reward the good man got for having had pity on the poor tramp. And, by the way, how does it come that this young vagabond had no money to pay for food? He was in the prime of life; and, so far as we know, was well and strong. In the great city of Cleveland there is all the time an unfilled demand for help—any kind of help. Just at the present moment, while I dictate these words, we are paying skilled masons who came down from Cleveland almost a dollar an hour; and the mason's helpers that came along get half as much. Yet able men are going about begging for "cold victuals," etc.

"THOU SHALT NOT KILL."

Somewhat more than a month ago a mob of citizens of Spartanburg, S. C., dynamited the outer gate of the jail and demanded of Sheriff White that he yield to them the person of a negro prisoner. Sheriff White stood before them, supported by a single deputy. There was a revolver in Sheriff White's hand.

"Gentlemen," he said, "I hate to do it; but, so help me God, I'll kill the first man who comes past that gate."

Perhaps the members of that mob knew Sheriff White well enough to understand that he meant precisely what he said. Perhaps they were influenced by mere cowardice. But, at any rate, the mob evaporated.

The negro who was the object of the mob's efforts has now been tried by a jury of white men, and has been found not guilty. There was, it appears, never any thing but flimsy suspicion against him. Mere suspicion had been sufficient inspiration for the Spartanburg disciples of Judge Lynch.

The above, which I clip from the Cleveland *Leader*, vividly illustrates several important points—first, the foolish, senseless fashion that some crazy people have got into their heads of taking the law into their own hands. Second, that, notwithstanding the command, "thou shalt not kill," there is a time when it is right to kill in order that we *save* the lives of the innocent; and may God be praised that we have men like Sheriff White who dare stand before a crazy mob and say, "So help me God, I will kill the first man who comes past that gate." I hope, if the time of trial should come, God will give me grace and courage to stand by this man. No wonder the mob "evaporated." The above clipping does not say whether that crowd was drunken or not; but judging from what I know of such things, the mob was probably fired up with beer or whisky. That is why it is getting to be the fashion of closing the saloons whenever any violent outbreak occurs. After it was all over, it turned out that the poor colored man was entirely innocent.

In our peaceful town of Bradentown, Fla., a poor fellow was dragged out of jail and hung up by just such a crowd. The sheriff excused himself by saying that "it was not possible to stop them." The colored man who worked for me informed me afterward that the poor fellow who was strung up was not right-witted, and probably was innocent of any deliberate wrong. Of course the mob did not know about this, and I fear some of them would not have cared if they had known. The authorities of Bradentown have recently broken up several "speakeasies" in the colored part of the town.

GARDENING AND GODLINESS.

Years ago I did a nice little business growing and selling horseradish. We had a grater run by the machinery in our factory, and our women employees ground the roots and put in our 1-lb. honey-bottles, and these were carried fresh every day on our market-wagon. As the bottles were returned next trip, we sold a 1-lb. jar full for 10 cts. Counting every expense as far as I could, the grated radish cost only about 4 cts., but I tell you it took some "bossing" to secure smooth running all the way from "producer to consumer." With the above preface, let us consider *another* successful(?) horseradish "son of toil." See below from first page of Cleveland *Plain Dealer* of Dec. 26:

> At the point of a revolver two masked burglars early yesterday morning compelled Samuel Hirt, 2216 E. 40th St., horseradish manufacturer, to march downstairs in his night clothes to a first-floor room of his home, where they forced him to unlock a safe containing $739, the receipts of his Christmas marketing trade.
>
> Police last night still were searching for the robbers, who fled from the house in haste as soon as they had snatched the rolls of bills and bags of currency that the safe held.
>
> Aroused from sleep by noises in the rooms below, Hirt left his bed and went to the top of a staircase, where he pressed a button that lighted the lower hall.
>
> He saw a masked man standing at the foot of the stairs with a revolver pointed up at him.
>
> "Turn that light out and be quick about it," the burglar commanded hoarsely, giving a flourish of his revolver to emphasize the order.
>
> Hirt didn't hesitate. With his hand still on the button he gave a push that darkened the hall below him. Almost at the same instant a pocket lamp in the hand of the burglar sent a stream of light up the staircase.
>
> "Samuel—Samuel, what is the matter?" Mrs. Hirt called to her husband from the bedroom
>
> "Don't say a word," commanded the burglar. "Now, come on down the stairs."
>
> As Hirt walked slowly down with his hands in the air the burglar at the foot of the steps called to a companion in another room.
>
> "Come on in, Jim; it's easy now," he said.
>
> A moment later a second masked man walked into the hall.
>
> Indicating that they were familiar with the location of the rooms of the house, the burglars compelled Hirt to go to the room containing the safe.
>
> "Unlock it," one of the robbers ordered crisply.
>
> With trembling hands the market man figured the dial to solve the combination. In his nervousness he was unable to open the doors quickly enough to satisfy the robbers.
>
> "Remember, no bluffing goes," one of the burglars warned. "Open it in a hurry or we'll send a bullet into you."
>
> Again Hirt turned the dial and this time the large handle on the door turned when he tried it. A moment later the door swung open. The electric flash lamp lit up the interior and showed the treasure the robbers were seeking.
>
> Hastily stuffing the money into their pockets the robbers turned to Hirt with a parting warning.
>
> "Don't call for help until we get out of the house," they said.
>
> The light flashed out and the robbers headed for a rear door.
>
> A few moments later Hirt rushed into the street and called for aid. A group of excited neighbors gathered and a call was sent in to police of the third precinct. No trace of the burglars was found.
>
> Hirt conducts two horseradish stands in the downtown market district. One of his shops is at Huron Road and E. 4th St., the other at Bolivar Road S. E. and E. 4th St. The amount in the safe, $739, represented his receipts for the three days preceding Christmas.
>
> A half-dozen other burglaries on Christmas eve were reported to police yesterday. Hold-up men also plied their trade actively according to reports from victims.

Do you ask what the above has to do with godliness, or what it has to do with us? Listen: Friend Hirt is an honest, hardworking man. Through days of toil he had reaped his final harvest, and was sleeping the sleep of the just. His money, taken in late at night, was deposited in a good safe. He was a prudent man; but what did his "safe" or any safe amount to? A fiend in human form *coveted* his hard-earned savings made from growing and selling *horseradish*. We are sometimes tempted to ask, "Is there *really* a God above?" If so, why does he *permit* such things? Joshua asked the question, you may remember, and Jehovah told him it was because there was an "*Achan*" in their midst. There is an Achan in the big city of Cleveland, and all the increased force of policemen will never restrain the "carnival of crime" (*Plain Dealer* again) until that Achan is disposed of. You and I are suffering because of him; we are all suffering; and God will permit things to go on from worse to *worse* until we wake up and "do something." A thousand or more saloons have just been "licensed." In God's name, why not license these *masked men* we have been reading about, to go on with *their* "industry"? Yes, and then let them buy and sell *these* licenses. The same daily tells us three *schoolboys,* excited by the way "hold ups" succeed, got a pistol and made a man give up his money. Several times, when there is labor or other troubles in large cities the saloons have all been closed. Is it not nearing the time when the mayor and chief of the police decide, as a last resort, to *destroy* this Achan, as Kansas, Maine, and other States have done?

SOWING GOOD SEED, ETC.

I think I have explained before, that, when we are down in Florida, Mrs. Root and I attend the Presbyterian Church. In fact, I should like to say we are a part of the Presbyterian Church—that is, if the good pastor and the good people there will not object. Well, of late my heart has been warming more and more toward our Presbyterian people; and here is a letter from a good Presbyterian brother that I hope will warm the hearts of all readers of GLEANINGS, no matter what denomination they belong to:

Mr. A. I. Root:—I am largely indebted to you for the contents of the "sticker" which I enclose. I am a Presbyterian minister. I have been on the road for a number of years in the interest of our church papers. After I had been traveling for some time I noticed that "drummers" often had "stickers," and it occurred to me that I might have one with which to "drum up" the Lord's business. But I was much at a loss as to the form. While in this dilemma I read one of your articles, in which an expression very much like the first of my "sticker" occurred. I took it, changed it somewhat, and had a thousand of them printed. My intention was to create a more devotional reading of the Bible. When I would hand them to some one I would say, "Stick that in your Bible. It is a good little prayer to offer before you read your Bible, or when you come to a good passage, or a hundred times a day when things don't go right."

At first I did not have my name on them. I gave one to a drummer. He said, "That's all right, but it hasn't any name on it." I said, "I do not believe that people are interested in my name."

He put his hand in his pocket, and, taking out a dollar, he said, "Here is a dollar. Have a dollar's worth of those printed at my expense, and put your name on them." So I have been putting my name on them ever since.

I thought you would be interested in this, and thought it nothing more than right that you should know the good your article was doing.

If any of your readers would like to have some for their own use, or for distribution, I will take pleasure in sending them free of charge if they will send a stamped self-addressed envelope, and say how many they want.

Hulbert, Okla., Sept. 22. E. P. KEACH.

The sticker he alludes to is a sort of gummed label, or card, and below is what we read on it:

Teach me, O Lord, just the
lessons you want me to
learn, and make me willing
to do what you want me to
do that I may be thy child
indeed.
E. P. KEACH, Temple, Texas
1913

Dear friends, I hope you will read that over and over. And now let me ask you the question, does it seem possible that any man or woman who reads and endorses that little prayer (for indeed it is only an enlargement of my little prayer, "Lord, help"), can be selfish or tricky or deceitful? God forbid.

SEVENTY-THREE YEARS OLD, AND—"THESE ARE THE BEST DAYS OF MY LIFE."

Dear Brother Root:—Several months ago you made mention in your Homes article of a new discovery you made. As I read it I was reminded of an experience of my own more than forty years ago.

One day my hired man said to me, "On next Saturday evening there will be a preparatory service at the Lutheran church. There will be communion services on Sunday." I did not say any thing to the Lutheran brother, but I wondered what kind of service that might be. I had never heard of such a meeting. However, I decided to go. But before I left I went into my bedroom and got down on my knees and asked God to keep me from going as a critic, but that I might get something good. They had an after-service, and the pastor began to ask his members questions about their daily life; and as he asked, and they gave their answers, I would mentally ask myself the question, and give the answer. I can remember only two questions. One was, "Do you have family worship in your families every day?" I, of course, could say "Yes." The next was, "Do you read God's word in your families every day?" To that question I had to say "No." The spirit of God had been talking to me about that very duty, but I did not take heed to it. We had a custom of singing a hymn, then have our prayer service. But there that Saturday eve, in that Lutheran church, I promised God I would read his word to my family every day, and I believe I have kept my promise up to this time. The children then were in their teens and under. Now they are all grown to manhood and womanhood, and I will ever praise God for the determination he put in my heart to live for him.

I am now in my 73d year, and these are the best days of my life, although the half of my family, which means my wife and six children, have passed over, and I am here with six children and twenty

grandchildren and two great-grandchildren. My children were all converted, and some of the grandchildren. I expect to meet them some day. But, most of all, and first of all, I want to see my Savior.

Abilene, Kan., Oct. 13. N. G. HERSHEY.

Dear friends, the above is the record of one of our good veterans who, by a chance word of a good faithful pastor forty years before, took up Bible-reading while supporting a family of twelve children. I do not know, and perhaps nobody but God knows, the influence and effect of reading the Bible every day for forty years. It had its influence, too, you may be sure on the grandchildren as well, and perhaps on the great grandchildren. And, besides all that, he is enabled to stand up before us in this little "class meeting"—for that is really what it is—and "testify" that, even though he is past threescore and ten, "these are the best days of my life."

High-pressure Gardening

ANOTHER "GREAT INVENTION" IN THE LINE OF "CHICKENS" AND "GARDEN SASS."

Before we can grasp the "magnitude" of my discovery in full, I shall have to take up some other lines leading up to it. In making garden in years past I have bought many loads of stable manure; for until I came to Florida I had got to thinking if it is true that it is "money that makes the mare go" it is about as true that it is "manure that makes the garden grow." Well, one drawback on the manure, especially if bought at the livery barns, is the weed seeds that come with it. Besides the weed seeds are the seeds of *oats* that seem to pass the digestive organs with vitality enough to grow "right smart" ofttimes, when they must be pulled out by hand. I remember mulching some choice strawberries with stable manure, and the oats came up so thickly we had almost a green lawn. Really, there is need that Terry and Fletcher give the *horses* lectures on chewing *their* food more thoroughly. Grinding the oats would certainly prevent germination; but, if I am correct, our experiment stations have not reported any very *great* advantage in ground feed. There is certainly a big waste in feeding *oats* along in this line; but I really don't know the best remedy. I believe it is generally agreed that *poultry* have a "mill" that God gave them that pretty well cuts off all chance of germination. Below is a clipping from the IHC Almanac that may have it about right:

> It is a pretty generally accepted fact among farmers that, to get the greatest feeding value from grain, it should be ground. Investigation has demonstrated that in some instances as high as 35 per cent of grain can be saved by feeding it ground. The average saving, however, will probably be about 12 per cent.

For several years past we have kept dry sand under the roosts in all our poultry-houses, and Wesley has swept up the droppings the first thing every morning. They are kept in tin cans until wanted in the garden. Since we have done this we have had little or no trouble from vermin. Another reason is that almost every day we have visitors who take GLEANINGS—ofttimes ladies; and when I "show them around" it is worth a good deal to me to find no droppings visible in any of the poultry-houses. *Now* you are about ready to take in my "discovery."

Mr. Rood, in looking over and admiring my garden a few days ago, said he believed some stable manure, even if it did cost $3.00 a load, would be a profitable investment on some of my new ground. I put a heavy dressing on about 100 square feet where I sowed alfalfa and sweet clover. I also put on half a pailful of air-slacked lime. The seeds came up finely; but there was also an *excellent* stand of oats as usual. After spreading two big loads on the garden where it seemed to be needed, there was about two wheelbarrow loads left. I told Wesley to put it under the poultry-roosts. There were probably oats in this like the rest; but there were *very few* when night came, and no poultry manure visible; and Wesley says fine dry stable manure is very much less work to *handle* than heavy, useless *sand*.

Terry, in all his writings, has been very emphatic about having stable manure worked up fine before putting it on the land. Do you know of any "machine" that will fine up manure as will a hen and chickens? When I saw how it worked I got a whole load and put the manure six inches deep under the roosts of all our eight houses. When we used sand, and especially when we fed much lettuce, the droppings were often so moist they went on the garden in lumps or chunks; and often in hoeing I spent quite a little time in breaking these up and mixing with the soil. The hens now do all this, and we have the floors all looking tidy if we leave them to the care of the hens a week or more.

Can you imagine any better way of keeping and handling the droppings and applying them to the land, than mixing and composing them with stable manure?

In conclusion I suppose I shall have to own up, as with many of my other discoveries, that it is *not* exactly *new*. In fact, it is just the way I kept chickens when a lad of ten or twelve, more than 60 years ago. My chicken-house was a " lean-to " back of the horse-stables. I fixed a door under the sill of the barn so manure could be shoveled into the care of my fowls easier than to lift and throw it out at the little door. The chickens dug it over and over, even in zero weather, and I had eggs to sell when no one else did; and when it came summer time, " our garden " (mother's and mine) was ahead of the whole neighborhood because of our supply of fine, dry, pulverized poultry and stable-manure compost.

Health Notes

"IF EVERY ONE DID AS TERRY DOES."

V. W. Clough, Brewster, Wash., writes to GLEANINGS IN BEE CULTURE, heartily endorsing *The Practical Farmer's* health book. And then he adds that, " If we all lived as Terry does, every thing in the eating line would be a drug on the market, with the possible exception of fruit; it would mean the bankruptcy of our nation." You can leave out the "possible." The fruit would all be eaten, and much more called for. We see no reason why the demand for vegetables would not be about the same as at present. There would be less grain products eaten, because we would get more good from a smaller amount, on account of more thorough chewing. So there would be far more grain to ship to England, which would be good for the nation, and would in no way injure the producers. White beans are a leading article of food in New England, but they are not as much used as they should be in many other sections. If every one lived as Terry does, the market price of the legumes would be higher than at present, unless many more were raised. Terry bought 3½ gallons of extracted honey last winter. If everybody used as much, the price of honey would go soaring. He bought three gallons of pure olive oil, and will soon have to get another. Growers could not begin to supply the demand if every one ate as much. His wife and he eat from 1½ to 2 pounds of best creamery butter per week. The price would go higher than it is now if every one used it as freely. If all let meat alone, as Terry does, because he can do better, there would be vastly more to ship to Europe, where it is wanted. The nation would actually gain by it. If Terry's simple, wholesome way of living were followed by all it might make a temporary trouble for egg-producers, but soon they would find a way to can or evaporate their products and ship them to countries not so well posted. This would not bankrupt our nation, although it might be considered as not loving our neighbors as well as ourselves. As to adulterated, poisoned, and injurious articles, they ought to be " a drug on the market." If every one shunned liquor as Terry does, there would be enough more grain to sell to pay soon the huge national debt. And there would be hundreds of millions more money in the hands of the people for comforts and real luxuries. Terry has never used tobacco. If every one did the same, the saving in money and the greater efficiency of our young men would soon boom business away out of sight of what it is in any other country on earth.

The above comes from the *Practical Farmer*. If Terry means that he and his wife use perhaps 3½ gallons of honey a year it certainly would send the price of honey soaring if every one used as much. If the necessaries of life, especially butter, eggs, and milk, should get to be a " drug on the market," it would be a great boon to the hard-working people who are at present complaining of the " high cost of living." When eggs get down to 20 cts. a dozen, instead of 30 and 40, in my Florida home, I always feel happy, because it is such a blessing to poor people, even if it does come a little hard on the " chicken man." May God speed our good friend Terry and his hosts of followers.

CASSAVA—SOMETHING MORE ABOUT IT.

We clip as follows from the *Florida Grower:*

> In Jamaica a new industry has recently sprung up in the line of making cassava wafers which are now exported to the United Kingdom and the United States. These wafers are made in several forms from the huge coarse " bammies," consisting of the grated root with a little of the starch pressed out, made into thin sheets and toasted or roasted or fried, to the delicate " tea wafers " which for some time have been used at fashionable luncheons and afternoon tea parties, especially in Boston. Nowhere is there any thing else in the bread line quite so good, in my opinion, as hot-buttered " bammies " fresh from the fire.
>
> Not only the wafers, cookies, and cakes, but also the new breakfast foods, tapioca, flour, etc., made from the grated root treated in different ways, are bound to be popular.

GETTING RID OF ROACHES, ETC.

Some years ago I saw an article in a newspaper saying that roaches could be destroyed by placing in their reach a mixture of flour, sugar, and plaster of Paris, all finely pulverized. The mixture is to be put in a dry place. I don't remember the proportions of the different ingredients; but the readers of GLEANINGS in Florida might try equal parts of each.

Portland, Ore., Aug. 25. C. WANTY.

The above would certainly be preferable to poison of any kind; because if you poison the roaches, and the chickens afterward gobble them up, you kill the chickens also —at least so they tell me down in Florida. In the above it is the plaster of Paris that does the business, and chickens do not mind plaster of Paris. The same thing has been frequently recommended for rats and mice. After they take a drink, the plaster sets.

Gleanings in Bee Culture

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VOL. XLII. APR. 15, 1914, NO. 8.

ANSWERS
TO 150 QUESTIONS

**By the Editor of . . . . . .
GLEANINGS IN BEE CULTURE**

The first fifty or sixty questions are those commonly asked by beginners. The remainder are queries that naturally arise in the minds of more experienced beekeepers. The last hundred questions have been asked by GLEANINGS subscribers, and are put in permanent form in this way because they cover those points which so often perplex beekeepers.

The index enables one to find at once answers which will help him to solve many of the puzzles connected with the care of bees.

The five questions given below have been taken at random from the book.

How can I tell a queen-cell from all the rest?

What is the best way to introduce a valuable queen?

What must be planted for bees to work upon?

I have an engagement to give a live-bee exhibit at our county fair this fall. This will be my first experience. Is it advisable to feed the bees while they are confined?

In comparison, all points considered, for comb honey, what advantage if any has the 4¼x4¼x1⅞ over the 4x5x1⅜ section?

Send for the book as premium when you renew your subscription to GLEANINGS, and read the answers to these questions and the other 145.

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The A. I. Root Co., Medina, Ohio

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.
H. H. Root, Assistant Editor. E. R. Root, Editor. A. L. Boyden, Advertising Manager.
A. I. Root, Editor Home Department. J. T. Calvert, Business Mgr.
Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLII. APRIL 15, 1914 NO. 7

EDITORIALS

Latest Reports from the Apalachicola Apiary.

Honey is coming in from black tupelo with a rush—so much so that it is crowding our queens and delaying brood-rearing. See page 306. As we are running almost entirely for increase we should prefer a more moderate flow. Prospects for white tupelo are excellent, and this is the main source of honey for that district. In spite of the backward weather in February and March, conditions are very good for making the expected increase. Perhaps the question may be asked, "What is the 'expected increase'?" Well—er, we'll tell later *after* we get it.

Later.—Black tupelo stopped on the 6th with white tupelo about ten days off.

H. J. Mercer of Los Angeles in Sing Sing Prison, New York.

According to a clipping from the Los Angeles *Times,* reprinted in the *Western Honey-bee,* H. J. Mercer, lawyer, beekeeper, supply manufacturer, and supply dealer at Los Angeles, has been given a sentence of nine years in Sing Sing prison for forging a mortgage of $250 on an aged woman. We are also informed that he was wanted in Los Angeles "on a felony complaint charging him with hypothecating fraudulent notes alleged to be worth $2000." It is further alleged that detectives who have been on his trail assert that he got away with at least $75,000 from other sources in the past year or two.

We are very sorry to hear this—more so because Mr. Mercer was a bright keen young man, capable of earning an honest living as a lawyer, as a bee-supply dealer, or as a beekeeper.

History repeats itself. The young man started out as thousands of others have done with a good bringing-up and with an honest heart. As nearly as we can learn, he was trying to do things on too large a scale. He incurred obligations which he could not meet, and then something happened—temptation, flight from justice, and finally prison walls.

The reader should not get H. J. Mercer confused with L. E. Mercer, a prominent beekeeper of California who enjoys an honorable record.

More Expensive to Winter Bees in the South than in the North.

While in many places bees in the South can work every day in the year, that simply means that the bees that go into late fall or winter will not see spring. The old bees will constantly die off, and the young bees will take their places. This means that brood-rearing will continue with interruptions all winter. If 10 to 15 lbs. would take care of a colony of bees for six or seven months in a good cellar in the North, it would probably take four or five times as much to carry the same colony through for the same period in many parts of the South. Said Mr. O. O. Poppleton, "My problem is not so much to encourage brood-rearing as to keep it down. Constant breeding compels the bees to fly for water, pollen, and nectar, wearing themselves out.

If a colony in southern Florida can gather a surplus of 50 lbs. average, when the season is at its best, those same bees will probably gather, during the entire season, four or five times as much honey as a similar force of bees would in the North. If it were not for the constant renewing of bee blood our Southern beekeepers would have a great bonanza of honey production.

The Old Original Book, "Langstroth on the Hive and Honey-bee," Reprinted.

The reprint of the old original edition of "Langstroth on the Hive and the Honey-bee," dated 1853, and containing over 400 pages, in cloth, is now ready for distribution. Our older readers will remember that this old volume, about the time father Langstroth brought out his hive and system, was one of the most charmingly written and entertaining books that was ever published. Indeed it so stirred A. I. Root that he wrote in his A B C of Bee Culture:

> What a gold-mine that book seemed to me! * * * Never was romance so enticing—not even Robinson Crusoe; and, best of all, right at my own home I could live out and verify all the wonderful things told therein.

There have been repeated calls for a reproduction of this famous work, so much so that The A. I. Root Co. finally decided last fall to make a reprint of it. It has now been reproduced in paper and binding with all the original cuts just as it appeared in 1853, without any change whatever save an introduction by C. P. Dadant.

Some of our younger readers might feel that perhaps this work would be out of date. While this is true, of course, to a certain extent, the fact is, that father Langstroth was *60 years ahead of his time*—so much so that he revolutionized beekeeping throughout the world. The old original book that helped do this is well worth reading—especially so as it contains many tricks of the trade that are being heralded to-day as something new. From a historical point of view it is invaluable. No bee library can be complete without it.

We are able to furnish this old edition, just as it came from the hands of father Langstroth, the father of American beekeeping, in 1853, for $1.00 postpaid; or in connection with GLEANINGS at the very low combination rate of $1.50, or clubbed with the A B C and X Y Z of Bee Culture, a $2.00 volume, for $2.50; or with Dadant's Langstroth Revised, $1.85.

Wintering, and the Prospects for a Honey Crop.

LATE reports show general good wintering throughout the country, with the exception of one or two areas where the late cold weather seems to have put the bees in a weakened condition. One district is in and around Philadelphia, and other districts are in the middle-southern States. However, we do not remember the time when the bees seemed to have been in better condition for harvest than this spring.

The prospects for a honey crop are from fair to good. Conditions were unfavorable in California, but late rains have improved the situation. Northern Florida is showing up well, and the southern part will do better than usual.

While the clovers do not show up quite as well as they did a year ago, there is every reason to suppose there will be a fair crop from that source. A good deal will depend on whether there is a drouth from now till the time the clovers begin to mature. Spring is opening up favorably and rather early everywhere.

Later.—We are having regular blizzards of snow and rain.

Beekeeping Taught in Y. M. C. A. School.

WE are in receipt of a program announcing a course in practical beekeeping to be given in the Y. M. C. A. schools of Louisville, Ky., on Thursdays from March 26 to May 28 inclusive. We regret that it arrived too late for our April 1st issue.

OUTLINE OF COURSE.—J. O. DUNKIN, INSTRUCTOR IN CHARGE.

Thursday, March 26, "Possibilities in bee culture—How to begin." (Illustrated with moving pictures.) Richard Priest Dietzman. Thursday, April 2, "Inhabitants and industries of the hive," J. O. Dunkin. Thursday, April 9, "Equipment—location and arrangement of apiary," J. P. Martine. Thursday, April 16, "The hive and how to handle it," Walter C. Furnas. Thursday, April 23, "Swarming of bees—transferring," Ernest W. Brown. Thursday, April 30, "Enemies and diseases of bees—remedies," Otto F. Recktenwald. Thursday, May 7, "How to produce comb honey," Richard Priest Dietzman. Thursday, May 14, "How to produce extracted honey," J. P. Martine, Otto F. Recktenwald. Thursday, May 21, "Interrelation of bees and plants—Robbing in the apiary—Details about honey and beeswax," J. O. Dunkin. Thursday, May 28, "Feeding and wintering bees," Walter C. Furnas, Ernest W. Brown.

For full particulars write Y. M. C. A. School, W. H. Lippold, Director, Third and Broadway, Louisville, Ky.

This is a step in the right direction, and deserves the encouragement and financial support of every beekeeper. Educational work of this kind is strictly in keeping with the purpose of such schools. Beekeeping has been, unfortunately, left out of our school work of the past; but it is coming now more and more to be recognized, not only in our public schools, but in our agricultural colleges. The two most prominent at the present time are those of Amherst, Mass., and Guelph, Ontario, Canada. The tide is rising, and coming generations will feel the impetus and benefit of college-bred beekeepers in the same measure and in common with other agricultural pursuits.

Natural Pollen Far Superior to Artificial.

AT our Apalachicola yard we have been furnishing our bees with artificial pollen substitutes, when natural sources were lacking. While we succeeded in starting up brood-rearing by giving bees common wheat flour such as we make bread of, yet it was easy to see that the natural product was far superior.

Said Mr. A. B. Marchant, whom we regard as one of the best authorities on bees in the United States, "I believe, Mr. Root, the reason why natural pollen is so much more effective is because the bees get a small amount of nectar *at the same time.* If we can furnish nectar or sweetened water along with our artificial pollen, we may be able to get practically the same result. But somehow we do not know yet how to make the combination."

Mr. A. B. Marchant discovered that common white wheat flour would be taken by bees about as readily as any other artificial substitute. He spread some old combs out in a sheltered location, and then sprinkled common flour over them. The smell of the combs attracted the bees, and both he and his son Ernest have discovered that the bees will take the flour from these old combs far more readily than they will from pans or trays. Mind you, the combs are not put in any hives, but placed outdoors where all the bees of the apiary can have access to them. Mr. Ernest Marchant, at our suggestion, tried the experiment of mixing flour and thin sugar syrup; but he soon discovered that the bees would daub themselves up with the sticky paste. Notwithstanding he was feeding thin sugar syrup in Boardman feeders at the entrance of the hives, the pollen substitute on the combs did not yield the results of the real article.

Mr. A. B. Marchant's idea is that thin nectar should be fed to the bees in such a way that they will get a supply of nectar and flour both at the same trip. We know that bees require saliva or nectar to mix up pollen and stick it in their pollen-baskets. Now, who is there who is going to solve the problem of making an artificial combination of the two that will yield the same results as natural pollen?

Out-apiaries Operated by Motor-boat vs. Wagon or Automobile Trucks.

During our recent trip to Florida we had an opportunity to compare the two methods of transportation between yards of bees. In Florida, especially yards near rivers, bays, and lakes, a gasoline-launch is the prevailing means of going to and from yards, carrying stuff back and forth, and it is a very nice way. It is free from dust and dirt, bad roads or mud, scaring horses, and punctured tires. There is nothing more invigorating or delightful than to go tuppy, tuppy from yard to yard in a gasoline-launch; and, conversely, there is nothing more aggravating than a boat out in mid-bay or river that will not go. If out in a large body of water, the wind and waves rising, there is no particular delight in monkeying with a motor that positively refuses to mote. Some of these two-cycle motors are an aggravation in this respect; but as a general thing an experienced boatman will overcome all of these difficulties. One disadvantage of the boat is slowness of travel. Unless one owns a high-power boat, which would be too expensive, the speed will not be much over six or eight miles an hour, while an automobile would double or treble that rate of travel. But one of the great advantages of the boat for outyard work is the smoothness of running. There is no jar or jolt, no puncturing of tires, no slipping or sticking in the mud, no delay or stoppage on account of rain, but an abundance of fresh air, so necessary in moving bees up and down the river or bay. Still again, a motor boat that will carry forty or fifty colonies will not cost over $200 to $300, and a second-hand boat can be obtained for half these figures, while an automobile would cost four or five times these amounts. The only possible trouble from the boat may be leakage and motor trouble; while in an automobile truck there are a hundred and one things that may go wrong, any one of which may stop the machine on the road. Unfortunately, however, most of the good locations are remote from rivers, bays, and lakes, and the great majority of beekeepers will have to submit to the cost and inconvenience of wagons and motor trucks.

Bees Recognized in Farm Papers.

More and more the value of bees is becoming recognized in the agricultural papers of all kinds. The progressive fruit-journals, most of them at least, have given the bees their rightful credit while the farm papers voluntarily run editorials telling of the value of bees for pollenizing blossoms. It indicates the beginning of the end of this wholesale spraying of blossoms.

The *Connecticut Farmer* and *New England Farm* in their issue for January 31 have a splendid editorial that is right to the point. We quote here a few sentences at random:

> We have long been blinded to the beneficent offices of these little creatures. Without them horticulture in all its departments would perish. * * * Strange to say, there are any number of fruit-growers who make all sorts of wild claims that bees puncture the skin of fruit. There is no evidence on record sufficient to convict the bees of any such depredations. * * * In one of Mr. VanPelt's addresses at the

State Board of Agriculture meeting he told of the efforts made by western farmers to rid the country of sweet clover, as they considered it a noxious weed of the worst character. They even went to the extent of proposing that beekeepers be driven out of the country, because bees help to spread sweet clover; but of late these same farmers have come to realize that the much-despised sweet clover is a forage crop, second in importance only to alfalfa. When fruit-growers argue that bees destroy fruit they are taking the same stand taken by western farmers in their misguided crusade against sweet clover. * * * * * Every fruit-grower ought to realize the positive necessity of delaying spraying operations until the blossoms are so far gone that the bees have ceased to work upon them. To spray trees in bloom, thus poisoning the bees, is a case parallel to that of the miser who killed the goose that laid the golden egg.

We have always felt that articles in a bee-journal along this line are not very convincing to fruit-growers, for they naturally think that the bee-journal is prejudiced. However, after our special numbers on bees and fruit we have noted with a considerable degree of satisfaction that the beekeepers make use of the material thus furnished in stirring up an interest in their local papers and in the farm magazines. Speed the day when the truth may become *widely known!*

The Case of C. I. Graham, who, it is Alleged, has been Scattering Foul Brood in Some of the Western States.

For some months past we have been receiving complaints regarding Mr. C. I. Graham, formerly of Oroville, Cal., but now of Reno, Nevada. It is alleged that he has been moving diseased bees from place to place, scattering foul brood wherever he has been. It is also claimed that his dealings with several persons have been unsatisfactory; that he buys or rents bees, alleging that he is going to form a big stock company.

Other parties go on to say that his methods are slovenly and careless; that if he had foul brood every beekeeper in range would get it, that he somehow gets control of a lot of bees and moves them into a new territory, and that it apparently makes no difference to him (Graham) whether the bees are diseased or not; that when he is through extracting he scatters his scraps and leavings of combs out to be cleaned out by robbers; and, of course, the bees of his neighbors, if there is disease in such combs, would be infected. Among these complainants are several men of standing.

In the *American Bee Journal* for November, page 368, a clipping was published to the effect that this Mr. Graham was arrested and found guilty of exposing diseased brood-combs, to the injury of the bees in the vicinity. We were also informed that another case against him was pending. Just what the outcome of this was we have not been advised.

Believing it is always fair to give the accused a chance to defend himself we wrote to Mr. Graham, explaining the nature of the complaints, and under date of Feb. 21, at Reno, Nevada, he writes a very good letter, from which we quote the following:

> I have no desire to attack any one; and the attacks made upon me are unjustified and unjustifiable. I have been made the subject of bitter persecution here in order to drive me out of this field as a competitor. The article in the *American Bee Journal,* to which you refer, was furnished by Inspector Guthrie, of this county, for that purpose, and was the result of malice and ill will—a feeling that I do not reciprocate. It is true that I was arrested, and tried in a justice's court here last fall for exposing diseased bee-combs. My apiary was visited by the inspector when he knew I was absent, and he took with him two men who were my avowed enemies; and while they did not produce any diseased bee-combs, as they would have done if they had found any, I could not, with these three hostile witnesses against me, escape conviction. . . . I am here, and here I am going to stay; and as I am not guilty of any wrong-doing I have no fear of what my enemies can do to me. I have been taught from childhood to return good for evil, and I shall do so in this unfortunate controversy. When the opportunity arrives that, with my 23 years of experience as a beekeeper, I can do Inspector Guthrie and the other beekeepers of this community where I live a good turn, I shall be on the spot to do it.

We can not think there was any malice or ill will on the part of Inspector Guthrie. As inspector of foul brood he had a duty to perform.

While we do not believe that Mr. Graham is malicious, yet the testimony in the form of various letters before us would indicate that he is slovenly, careless, and neglectful in his methods—so much so that his bees would readily get foul brood if it were anywhere around. It would appear, also, that if he got the disease he would not be greatly concerned about it. When such a man practices migratory beekeeping, moving bees from place to place by the carload, he would make trouble for beekeepers in any territory where he might go. Either Mr. Graham (if the above charges are true) should mend his methods, or his bees should not be admitted into localities protected by law. Assuming that he means just what he says, he should at once clean up his bees and keep them clean (if he has not done so already), or go out of the business. His neighbors have moral as well as legal rights that should be respected. It is surely up to Mr. Graham if he has been scattering foul brood unintentionally or otherwise to do his neighbor beekeepers "a good turn." Will he do it? We are going to take him at his word that he will.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

I'M surprised at the general belief in breeding for improvement among writers in April 1st GLEANINGS. Not one, I think, opposes it.

IF thin super foundation is worked less readily by the bees than medium brood, as shown, p. 139, extra-thin super must be still worse. I've no use for extra-thin, anyhow.

NO JOKE, friend Byer, about rarity of bees here, on second-crop red clover. In Ontario you say *some* bees work on it, but in England *all* hive bees can work it, while here rarely any.

MY FIRST thought on seeing those bees on cover of GLEANINGS, April 1: "Those pictures are faulty; but they're 'the real thing.'" I don't see how you got dead bees to look so life-like.

O. BROMFIELD, I use five splints to hold medium brood foundation in frame. Don't know whether four might answer. I boil splints in wax till it stops frothing, then put in when wax has cooled to be just liquid; no special tool for imbedding—just the edge of a little board soaked in water.

G. M. DOOLITTLE says, p. 209:

> Any beekeeper who has a spark of love for his pets is all awake for the season when the first song of the bluebird breaks forth on the air, and the musical croak or peeping of the frog in the pond is heard once more.

That's not written in rhyme, but it's poetry of the right sort. The man who isn't thrilled with such sounds is not a true beekeeper at heart, and thrills of that sort are beyond the purchase of money.

A. I. ROOT, you seem just a bit inclined, p. 275, to think we might as well sit complacently with folded hands and continue a lot of denominations of churches with the difference between tweedle-dum and tweedle-dee. Now look here; you old fellows may as well make up your minds to get out of the way for us younger ones, because the uniting of the sects is coming, believe me. In Canada a movement is on foot to unite Methodists, Congregationalists, and Presbyterians; in this country some denominations have already united, and it's in the air all over the land. When Billy Sunday was in Marengo all the churches worked together as one. The idea that they could do better work together then and better work apart afterward! Get out!

E. G. FINNUP, Finney Co., Kan., the world's champion sweet-clover grower, also an extensive stockman, has 1500 acres devoted to "the weed." From a 100-acre field he harvested 900 bushels of seed, bringing $13,000. He considers sweet clover the equal of alfalfa; makes earlier pasture; will not bloat cattle; stands dry and freezing weather better; grows on land where alfalfa will not; yields with him a greater tonnage of hay; and grasshoppers don't bother it, but are very fond of alfalfa.—*Country Gentleman*, 657. [The farmers of Kansas seem more generally to recognize the value of sweet clover as a forage-plant than the farmers in some other parts of our country. In Kansas they have demonstrated that land that is too poor to grow any thing but prairie grass will grow sweet clover, and sweet clover is making that land come up in value in a way it never did before. It is very strange that some apparently up-to-date farmers, and even some scientific agriculturists in the East, regard sweet clover as a mere weed. Years ago they so regarded alfalfa. History repeats itself.—
—ED.]

I THINK I was the first to publish that I had had a queen reared over a colony with a laying queen. That was accidental. I think I have never since succeeded intentionally. Last summer I tried it over ten colonies—dead failure; but in two or three cases where I had no thought of rearing a queen, where there happened to be brood in an upper story I was surprised to find a nice brood-nest with a young laying queen. Who knows the secret of success? [When Doolittle first brought out his book on queen-rearing, there did not seem to be any thing so very difficult about raising queens in an upper story with a laying queen below; but it will be remembered he used perforated zinc between the upper and lower stories; but later on he found that the upper-story proposition was not a success except during a general honey-flow when brood-rearing would be stimulated at its best. While we do not believe that the mating of queens in upper stories is a general success, we never regarded it as a difficult thing to accomplish when there were suitable conditions. Queen-breeders have for years raised cells in upper stories, and do it yet, as the simplest and most successful plan for securing well-fed baby queens. It is only a step further to get these young ladies married. Well, if you will turn to the last edition of the A B C and X Y Z of Bee Culture you will find some of the requisites for cell-building in upper stories.—ED.]

J. E. Crane SIFTINGS Middlebury, Vt.

J. L. Byer tells us, page 145, all about his method of spring feeding and management, and he is sound to the center on this important subject.

* * *

What is the matter with your bees, Dr. Miller, that they do not work on second crop of red clover at Marengo? They work on it readily here in old New England. See page 125.

* * *

The Feb. 1st number of GLEANINGS, with its beautiful pictures of fruits and loaded fruit-trees, and advice about spraying, made it look almost like a horticultural journal. What a satisfaction to know that our bees are often of as much value to our neighbors as ourselves!

* * *

A truckman told me to-day that his horse would grow poor as fast standing in the cold as at work. Of course; for it requires fuel as surely to produce heat as power; and if bees have to endure long-continued cold it will just as surely reduce their vitality as work, and so shorten their lives.

* * *

Mr. Mayo's experience with bees in an orchard and grove, page 42, corresponds with my own. A little shade is good; but dense shade is bad. We have one yard partly in dense shade, and part but little shaded; and we find those having but little shade have done the best for a number of years.

* * *

Dr. Miller says, page 125, that a Swiss hotel and sanatorium advertise for honey, and remarks that " our hotels haven't got up to that yet." Well, perhaps not exactly; but we have supplied a sanatorium for some time, and I put up a lot to go to a hotel in one of our larger cities this very forenoon: and it is not the first hotel to buy of us either.

* * *

"Incomparable observer" is what Darwin called Henry Fabre, the celebrated French entomologist. Some of his works have been translated into English, and are full of interest to any lover of insect life. " The Social Life of Insects," " The Spiders," " The Life of a Fly," and " The Loves of Insects," are written in a simple, delightful style, and ought to be in every public library.

* * *

A. I. Root's temperance column reminds one of an old law enacted three or four thousand years ago: " If an ox gore a man or a woman to death, the ox shall be surely stoned, and its flesh shall not be eaten; but the owner of the ox shall be quit. But if the ox was wont to gore in times past, and it hath been testified to its owner, and he hath not kept it in, but it hath killed a man or woman, the ox shall be stoned, and its owner shall be put to death." Alas! who shall count the number of men and women that a modern beast has gored? Shame on our boasted civilization that allows both the beast and the owner their liberty!

* * *

A good deal has been said of the value of parcel post in GLEANINGS, for beekeepers. We have used it for shipping small lots of honey, but lately we shipped a box of two dozen small bottles of honey to New York, which, on arriving at destination, was found to have had nine of the bottles taken out without regard to the command " Thou shalt not steal." On inquiring at the local postoffice we were informed that they were not responsible, as we had not had the package insured. At the express office we found the package could have been sent for even less by express than by mail. Perhaps we shall have to conclude that the most valuable service of the parcel post is in compelling the express companies to reduce their rates to a reasonable sum. [In many cases express is cheaper than parcel post. —ED.]

* * *

Arthur C. Miller tells us, page 131, that stimulative feeding " should always be done in the fall. Give them all you think they will need, then double it, and then add half as much again for good measure." Now, that is generous, and it always makes us feel good to be generous; and it never pays to be stingy with our bees; but let us examine this statement a little. I find many colonies the 1st of October that I think need at least 35 lbs. of heavy syrup. Suppose I double it. That would be 70 pounds; then half as much again would make 87½ pounds—more than the colony could store in an eight or even a ten frame hive. I tried feeding very heavily once, many years ago. How I enjoyed seeing the bees lie out in October! Next spring they didn't lie out, but a good many of them were *laid out.* No, Miss or Mr. Beginner; feed enough and then stop. Mr. Miller is a good fellow and a great thinker, and I enjoyed his notes immensely; but some of them need to be discounted a little.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

In the March 1st issue, under High-pressure Gardening, A. I. Root speaks of the potato industry and the great sale of seed for southern markets by E. E. Harington. I never see the subject of the potato business mentioned but that I am at once interested. I followed the potato-growing business for a good many years in the Kaw River Valley, in eastern Kansas. At that time nearly the entire valley from Kansas City to Topeka was one vast area of potato-fields. We discovered early in the history of the industry there that northern-grown seed is far superior to any we could preserve; for that, indeed, was the secret of the greater success with the northern grown. We secured nearly all of our seed from the Red River Valley of the North, and used nothing but the early Ohios. The secret is, the fact that the potato dug (of necessity) as soon as matured, holds all of its vitality. In the South we were obliged to keep our native seed for at least eight months after maturity, and its vitality was very much exhausted by planting time. I am the originator of the White Early Ohio potato. I discovered two white tubers, evidently sprouts, when following the potato-plow in a field of the Red variety. I placed them in the cellar side by side. Unfortunately one of them froze; but, *very* fortunately, the other did not. I planted it in the spring. About half of its crop went back to the red stock. Only the white ones were replanted, and so on until the fourth season, when they came pure white. I had them grown in the Red River Valley of the North for two seasons, then sold the entire lot to the C. J. Vaughn Seed Co., of Chicago. They were introduced by this firm.

* * *

No rain has fallen since February 21. The entire period from that date until March 21 was a period of cloudless skies March 16 a desert wind began blowing—one of those dry electric winds known as a "norther" that drives our moisture away faster than any other weather condition. On the 18th the record for high temperature came nearly being broken, it having reached the highest point for 39 years. These conditions, together with the warm winter, have forced the spring forward till the flora now blooming is a full month or more ahead of its season. Last year the first orange flower I saw open was on the 7th day of April. This year the bloom will be almost entirely gone by that date. The sage has been blooming more or less for the past month, and is now almost at its best, more than a full month ahead of its season; for as a rule we figure on little surplus from the sage before May 1.

Some of the most peculiar conditions have come with the season I have ever seen: and while the bees have improved every moment, building up from very small colonies to full-fledged honey-gatherers, yet they are behind the season. February 23 I discovered that I had about forty colonies very short of stores and long on brood. Fearing they would have to face a week of bad weather at any time, I decided to feed them at once; for such conditions would have forced them to starvation. I fed 17 colonies a gallon each of sugar syrup. My son returned to the apiary in a few days to feed the rest. My anticipated bad weather did not come, but I was not able to return to the apiary for a period of two weeks. When I did return I not only found some of my syrup still in the feeders, but all had an abundant supply of honey gathered from the sage, and many colonies storing surplus. The sage has been yielding freely until the 21st, when the weather became cooler and the clouds overcast the sky. So far I have not seen a trace of our old enemy the sage weevil. We shall doubtless harvest at least a fair crop from the sage. The condition of the bees in the sage belt is not gratifying. The average loss will reach 50 per cent at least, according to reports received. Reports from San Diego Co. indicate that the loss there has been very heavy. I am informed by Inspector Meeker that in my own county (San Bernardino) the loss has been fully a half, some apiaries having lost as high as 80 per cent. I always figure myself in San Bernardino County; but in reality my bees are in Riverside except those at my home.

On account of the heavy loss of bees, together with the slowness of many colonies in reaching the supers, we can not expect an excessive heavy crop from the sage, especially if we should not have more rain during the spring, which looks probable.

Later.—Since writing the above, light rains have fallen, which improves the prospects to a great extent. The button sage will develop to its fullest capacity, and is assured of moisture to sustain it until nature bids it cease blooming. The white sage, wild buckwheat, etc., now seem assured of their needed moisture.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

BEES AND APPLE-BLOSSOMS.

"I see that Doolittle lays considerable stress on the pollen and nectar which come from the early bloom, and especially that from the willows and hard maple. How about the apple-blossoms? Are they not of equal help to the bees with those of an earlier blossoming? I had supposed that the nectar the bees gather from apple-bloom is the greatest factor of all the year in stimulation of brood-rearing in time for an army of bees for the white-honey harvest."

I consider your supposition as regards the "greatest factor" correct, providing the bees have gotten well under headway with their brood when the bloom from the apple appears. But to have this bloom of the greatest value, brood should be started so that 8000 to 12,000 bees are nearing maturity when the apple-bloom begins to open. I consider the great value of nectar from apple-bloom to lie in its stimulating quality, toward plentiful brood-rearing, and in producing stores to tide over the period of scarcity which immediately follows this bloom for a time approximating twenty to twenty-five days.

More than half a century ago our beloved M. Quinby penned these words: "In good weather, a gain of 20 pounds is sometimes added to the hives during the period of apple-blossoms. But we are seldom fortunate enough to have continuous good weather, as it is often rainy, cloudy, cool, or windy, all of which are very detrimental. A frost will sometimes destroy all, and the gain of our bees is reversed; that is, their stores are lighter at the end than at the beginning of this season of flowers. Yet this season often decides the prosperity of the bees for the summer. If there is good weather now, we expect our first swarms the fore part of June; if not, no subsequent yield of honey will make up the deficiency." And no truer words were ever uttered, as applied to central New York; and what applies to this locality will apply quite generally to the Northern States.

From this we see that the apple-tree bears no mean relation to the person interested in apiculture, outside of the fruit it yields. Apple-blossom honey is somewhat rank and strong when first gathered; but after staying on the hive till thoroughly ripened, it assumes a nice spicy flavor. though when at its best it can hardly be said to equal that from clover or basswood. I believe that, if we could have the same number of bees in the hive in apple-blossom that we do in basswood, and if the weather could be equally good, the yield from this source would be nearly or quite as good while the bloom lasts; but the trouble is, the bloom comes so early in the season that we do not have the bees; and, still worse, the weather is usually such that the bees do not have an opportunity every year to work more than enough to encourage brood-rearing, and sometimes not even that. For this reason I have found that it does not pay to try to work the colonies up to an unusual strength with the hope of securing a surplus in comb honey from this source.

It is quite amazing what a good colony which has wintered well will do where there is continuous good weather when the apple-trees are in bloom. In 1877 we had a good yield from this source—so much so that many colonies stored, capped, and finished from five to twenty pounds of surplus in the section supers, besides storing in every available cell below not occupied with brood or pollen; and the result from the apiary that year was the highest ever obtained by the writer, which was an average of 166 2-3 pounds from each old colony in the spring. Another year, when we had continuous good weather throughout the whole bloom, a hive on the scales made a gain of 31 pounds during the bloom.

I well remember trying a guessing experiment that year. I counted the bees as they came in at the entrance loaded with nectar. They were well at work at about seven in the morning, and the first count showed 42 loaded bees coming in during one minute: the next minute, 46; the third, 41; the fourth, 44. At about ten o'clock I counted again, and the average at this time was 49 to the minute on five counts, while at one o'clock the average was 51 per minute, and at five o'clock the number of loaded bees entering the hive proved to be nearly the same as the first count in the morning. I figured that each bee carried a drop of nectar; then estimated the number of drops it would take for a pound, calling nine pounds as the weight of a gallon of this nectar as it came from the fields. Then I "struck an average" to get the number of bees per minute for the whole day, and multiplied this number by the number of minutes worked. and decided that the result of that day's work would be 7½ pounds. I had weighed the hive in the morning. before any bees went to work, and the

Continued on next page.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

Texas and California, both with a reputation as leaders from an apicultural standpoint, seem to have an even start this year as concerns the prospects for a good honey season. With an unusual amount of rainfall through the winter months, and rains last fall and this spring, indications are for a large crop of honey in each of these two States. Strange it is, though, that, while both of these States are leading honey-producers, Texas does not affect the northern and eastern honey market, while California does. Instead, Texas consumes almost all of her own honey, assisted by Oklahoma, where a great deal of Texas honey finds a good market.

* * *

The more I study the matter of unpainted hives vs. painted ones, the more convinced I am that painting them is the only sensible thing to do. These observations, of course, are for this part of the country where the summer sun is perhaps somewhat more severe. The more unpainted hives I see in my travels around, the more I detest them on account of their unsightly weathered appearance and the gaping corners and split sides or ends. Some of the wise ones claim that the latter trouble is all due to the way the hives are nailed; but I am here to tell you that there is not so much in this argument. Of course, there is a difference between good and poor nailing of hives: but I want to say that there is also a great difference between well-nailed painted hives and the best-nailed unpainted ones. The paint should be put on just the same.

* * *

Locality does not have so much effect on some things as has been claimed, it seems. For instance, I remember a good many times when our bees were just as cross toward the end of a good honey-flow, and with honey still coming in " at a good clip," as Dr. Miller quotes Dr. Ludden, p. 163. It seems that, when the hives have been stored full of the golden stores, the bees are the more determined to protect them against any possible intruder that may come along and deprive them of these after the long hard toil of storing. It has often seemed to me that a colony of bees that has its hive exceedingly well filled with honey is more difficult to handle at that particular stage than under ordinary conditions. This has come to my notice several times with colonies that ordinarily behaved very nicely and did not seem to repel our manipulations as when we approached the hives to take away the surplus honey toward the end of the honey-flow.

* * *

Keeping bees within the city limits has been defended by the writer in a number of instances, and our own number of colonies has ranged from a few to forty and more colonies right in the heart of this city of some four thousand inhabitants. While we have had no trouble on account of their presence from neighbors and others, we have decided to move them all away to a safe distance to prevent them coming back and loitering about the honey-house as they now do. In this respect they have annoyed us a great deal—so much so that we moved all of them away once before. But the fact that various colonies and nuclei can be picked up here and there at different times, and can be more conveniently cared for at home, this number has again increased to a dozen or so. The annoyance about the honey-house and the honey-wagons, and every thing else, is so great that we prefer not to have them about. It is true that " the other fellow's " bees may come just the same; but with ours out of the way the number will be decreased appreciably.

Conversations with Doolittle

Continued from preceding page.

evening weight showed a gain of 8 pounds and 2 ounces in excess of that in the morning, so I had guessed within ten ounces of what had really come in that day.

But I think I hear our questioner asking " What has this guessing-bee to do with practical apiculture? " Well, it had a lot to do with me, for it brought to me the joy and fun that was to be found with the " trade " called " apiculture." Very few indeed have made a practical success in life where they entered any trade or calling with nothing in view but the money there was in it. When toiling for the dollar, every thing is drudgery. But when a person loves his calling so that he is eager for the next day's fun, every night as he lies down to sleep, he not only gets the joy and fun, but money as well.

GENERAL CORRESPONDENCE

OPERATIVE COSTS; THE FREQUENT WASTE OF TIME AND LABOR

BY ARTHUR C. MILLER

Arthur C. Miller

In the Jan. 15th issue, page 50, I tried hard to bring home to the readers some of the economics of bee culture, using the new method of queen introduction as the vehicle to convey my ideas. I rather flattered myself that I did very well, and thought I said things in such a manner as would set some of the beekeepers to thinking, and to considering the cost of some of their methods. In fact, I felt quite sure that I had so carefully expressed myself that there would be no missing the message I wished to give.

The editor gave it a kind notice in his department; but as he seems to have been so interested in the percentage of queens lost that he quite missed the matter of dollars and cents, I fear that I was not as clear as I thought. The editor also slipped up in his percentage figures, as I think I can show. He says the loss by the cage method in his yards is 10 per cent, and that by two of the most expert queen-handlers in the country. Then he says that of 100 queens sent to a customer, the latter lost 10 per cent; and it was right there, I fear, his arithmetic gave out. He lost 10 per cent, the customer lost 10 per cent of the same lot of queens, and ten plus ten makes twenty. But of all the queens he produced he had only 90 per cent left to sell; so, to be really accurate, his customer lost but 10 per cent of 90 per cent, or 9 per cent—total, 19 per cent. But that isn't correct, though it may appear to be; for if his loss was 10 per cent, then he must have lost one of the extra ten he bought; so the real shrinkage on the original lot of queens was 20 per cent. Now that, mind you, was by experts

When I said the loss by the cage method was about 40 per cent, I based my statement on answers to queries, on testimony picked up when inspecting and by personal experience. If you choose to pull in the poor beginner by the scruff of his neck you will find his loss will average nearer sixty than forty per cent.

Whatever the editor does with my figures, he must double his own. He based his on experts, while I based mine on all classes, which, from the lesson I was trying to teach, was the proper basis.

Accepting the loss of twenty per cent by experts as the correct one for the commercial beekeepers, and leaving the novice and amateur out of the question, we still have a startling money loss by the cage method of queen introduction. If memory serves me aright, the editor's output of queens is about 5000 annually. For the sake of easy figuring, we will use the retail price of untested queens as the unit price, to wit, $1.00. That means $5000 worth of queens. Of this he confesses to losing 10 per cent by the cage method of handling, or $500. His customers lose an equal amount—a rather serious loss on a $5000 business, eh?

Now figure the loss to all the beekeepers of the country, and set it over as one of the overlooked costs of honey production.

But two other items he has quite overlooked—the labor (*time* used by the beekeeper in the cage plan of introducing and subsequent inspection, etc.), and time colonies are without a laying queen, and the consequent upset and indirect loss. To be sure, the thoughtful man does his requeening when this latter is trifling; but it must be reckoned, be it large or small.

If the method of requeening without dequeening proves successful, we may save the time of hunting up the old queens, and another very large cost item will be removed.

In other words, beekeepers are more wasteful of *time* and *labor* than they have the slightest conception. By some of the most popular and most widely taught methods of bee culture it costs as high as $5.00 and even $6.00 per year merely to handle each colony of bees. It costs the best of us, when using our brains all the year to save us labor during "the season," approximately $2.00 a year to "handle" our bees. Under exceptionally favorable conditions the cost has been lowered to $1.00 per year; but I believe $2.00 to be much below the average, and am supported in this view by some careful investigators.

In the term "handle" I include all the expense of keeping and operating a colony of bees, such as interest, taxes, depreciation, insurance, and labor. Supplies, such as sections, super foundation, hives for swarms, etc., are no part of *operative* cost.

A man with sufficient ability to operate a commercial apiary successfully and profitably market the crop, should be able to earn at least $5.00 per day at any one of several other lines of business, so I used that figure on a ten-hour day, or 50 cts. per hour as time value in apiary work.

If some of the advocates of thorough spring overhauling, of stimulative feeding, of building up weak colonies, and of the hundred and one other needless and worse than needless operations, will just keep account of the actual time used in the apiary for one season, they will be staggered at the total.

It will not take much thinking to estimate the *hours* given to each colony in a year. You can figure it by taking the total of days the owner and his helpers spent at it and dividing it by the number of colonies; or if the beekeeping is a side line, and attended to at odd moments, it is not difficult to determine how long each operation takes.

Hunting up the old queen and getting in a new one takes perhaps as much time for the average beekeeper as any part of the work, and for that reason I used it to illustrate what I had to say on economics.

If beekeepers had devoted to operative costs a small part of the time and thought they have given to supply costs they would have profited immeasurably. It is well to keep cost of equipment as small as possible, that interest charges and depreciation may be less; but in trying to force supply costs down, there is danger of getting such poor goods, etc., as to result in ultimate serious loss. Within certain limits it is wise to put quite a sum into the equipment provided the annual operative cost is thereby reduced. If the increase in prices of supplies serves to turn the beekeeper's thoughts to the economics of his business, it will be worth much to them. I would go even further, and say that I think the rising price of supplies a blessing, for it will deter many persons, who are not financially able to enter the beekeeping business, from undertaking it; and it will gradually crowd out those who are poor managers, always short of cash, and always hurting the honey market by sacrificing their crops.

Devote your thoughts to the expenses of operation, and let cost of supplies alone for awhile.

Providence, R. I.

[Try as hard as we may, it is not always easy to make the other fellow understand just what we mean. If we missed the point that our correspondent was making, it is apparent to us, at least, that he did not entirely get *our* point of view as to the actual loss by introducing on the cage plan. If we *introduced* 5000 queens in our apiary, and the loss from the cage plan were 10 per cent, then if the other fellow who bought them of us should lose 10 per cent in introducing, it would be proper to add the two percentages together, and thus make the 20 per cent loss. Mr. Miller is correct when he says we reared 5000 queens. We actually did better than that. But there was only a very small percentage of fertile queens that were *introduced* into our yards—probably not one per cent of the number reared. On this basis there would be 99 per cent that would have only *one* introduction instead of two; therefore the percentage of loss on the part of the expert would be, as we figure it, not higher than 10 per cent. But possibly our correspondent was figuring on the loss in introducing *virgins*. If he figured that way, then we shall have to confess that the loss by introducing on the cage plan would go away beyond 20 per cent.

Mr. Miller says that a man with sufficient ability to operate a commercial apiary successfully and profitably, and market the crop, should be able to earn at least $5.00 a day at any one of several lines of business. He then figures on a ten-hour day, and operating expenses 50 cents an hour for apiary work. As a general thing, one good man can furnish the brains for half a dozen or a dozen men or boys with an abundance of muscle and a little experience. Said an old and successful beekeeper the other day, "I can hire all the men I need, and some pretty good ones, at $1.50 a day: but, mind you, *I* furnish the brains. They do the work." Ordinarily we would say that 15 cents per hour is a low figure; but 20 to 25 cents will usually buy a pretty good man in the capacity of operator to work on general plans supplied by the boss. Mr. R. F. Holtermann goes one better. He hires student help every year, pays them so much a month and board, and a percentage on what the season develops. His labor item probably would not exceed 15 cents an hour; but his own time is probably worth 50 cents or more per hour. If we suppose that the average man who operates 1000 colonies is capable of bossing five or six other men, the relative cost per hour would be reduced in proportion. For example, five men at an average price of $2.00 per day would earn $10.00 per day. The beeman himself would make this $15.00, furnishing the brains and doing some of the labor. The operating expense of the six men then would be $2.50 a day, or 25 cents an hour. Perhaps this is what Mr. Miller has in mind.—ED.]

REQUEENING WITHOUT DEQUEENING

BY J. E. HAND

On p. 851, 1913, J. B. Merwin outlines a method of requeening without removing the reigning queen. This article introduces a subject that has been discussed pro and con in the journals with the unanimous verdict that, while bees will tolerate a plurality of laying queens or queen-cells, acting on the principle that "to the victor belong the spoils," they will not, as a rule, tolerate a virgin queen at mating age in the same colony with a laying queen of any age, unless she is actually failing, even though separated by a queen-excluder. There are exceptions to all rules, however, and undoubtedly friend Merwin's case is the exception and not the rule. Some 20 years ago Mr. Doolittle became quite enthusiastic about rearing queens in a hive having a laying queen, the bees having access to both compartments, but was compelled to abandon the project because a large majority of the virgins were either killed or driven from the hives by constant nagging and worrying by the bees as the queens arrived at mating age.

Viewing it thus, it is safe to assume that friend Merwin's success was due to one of two conditions—either the laying queens were actually failing or weak, or else an unusual honey-flow had a soothing effect upon the disposition of the bees temporarily; for many manipulations can be performed with bees at such times that would result in disaster during a dearth of nectar. It is generally conceded that a plurality of laying queens are safe in any hive until they happen to meet when both are in fighting trim, which may not take place for several days, or even weeks. This gave rise to the false theory that any number of queens would co-operate peacefully in the same hive if the bees would accept them. The late E. W. Alexander became very enthusiastic about it; but nature asserted her power, and the queens fought in mortal combat until but one remained, and the theory was exploded.

It strikes me that the method of requeening without dequeening, as outlined by A. C. Miller, page 850, gives promise of ultimate success when operated in conjunction with the smoke method, for the reason that a queen on arrival by mail is slim and active, while the reigning queen is sluggish and corpulent; hence if they meet after the bees have become reconciled to the new queen the chances are all in favor of the new queen. But the chances are even that they will meet while the bees are still viewing the new queen with suspicion, in which case the bees would undoubtedly decide the contest in favor of their recognized monarch. This contingency could be easily provided against by using a division-board between them for two or three days.

Birmingham, Ohio.

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REQUEENING WITHOUT DEQUEENING IN NEW ZEALAND

A Duel Between Two Queens

BY N. SMEDLEY.

In the December 1st issue, 1913, page 851, is an article on requeening, by J. B. Merwin. This is a step in the right direction, and will prove a cheap and safe method of requeening. I have just tried it with 100 hives. In some cases where cells were already started, I grafted these without caging the queen, and they were accepted and drawn out to fine cells. This copy of Gleanings came at the right time, as I was thinking over this requeening problem. I was killing the old queens and grafting what cells I found already formed. Any found queenless would receive a laying queen from another hive, and the hive the queen was taken from would be grafted. The queen's wings are clipped. Killing these queens in the middle of January (in my locality), I consider is no loss; for by the time the last of the eggs are hatched out the honey-flow is about done.

I have also tried the smoke plan of introducing virgins; but the virgins were not successful in ridding the hive of the old queen, but they were accepted in every queenless hive. I had a one-frame observatory hive with a laying queen. Toward evening I ran in a virgin queen. She passed the guards, and I watched her climb up the frame. The bees took no notice of her. She went among them quietly and seemed at home; but presently she came to the queen of the hive, and they fought immediately, rolling down the frame locked together, on to the bottom-board. Now, here is the point: As soon as these queens started to fight, the workers rushed down upon them and separated them and killed the virgin.

SWARMS ENTERING HIVES OCCUPIED BY OTHER BEES.

I should like to know if you have ever known the following to happen: I was working in an outyard of 55 colonies at swarming time. A swarm issued from a three-story hive at one end of the yard. I hived it in a box and set it to one side, as I wanted to finish with the hive I was working at. About five minutes later a second swarm came out lower down the same row of hives. This was a good after-swarm. At this time I had finished my work at the hive mentioned, and stood waiting for this swarm to settle. To my surprise it went into the hive that had just swarmed, the swarm being still in the box. I went to this hive and watched them going in. Presently a virgin queen alighted on the front board. I caught her and killed her. I destroyed all queen-cells but one in this hive, and the bees went to work a week later in another outyard. In working through this yard I came to a hive ready to swarm. The queen's wings were clipped and the cells cut out, but I found afterward I missed one. Half an hour later this hive swarmed. I picked up the queen and caged her, and was preparing to receive the swarm in a prepared hive when I noticed them entering two hives about twelve yards away. One hive stood in front of the other. One of these hives had swarmed earlier that day. The other was a division from a strong hive earlier in the season. There were no bees returning from the swarm to their hives, or at least not enough to be noticed.

Te Awamutu, N. Z., Jan. 31.

[The occurrence of swarms going into other hives that have just swarmed, while not common, have been reported from time to time. We do not know how to explain them, unless there are a few stragglers from the swarm that are returning to their old home. These attract the bees of any other swarms that may be in the air with the result that such bees go in the hive just vacated. If cells are destroyed there is no reason why the two households can not unite as one family.

Your account of how the bees took a hand in the queen fight is interesting. It shows that they do sometimes interfere in behalf of one of the queens. There is evidence that at other times they do not meddle in the row. We should be glad to get any other facts that have actually been seen. —ED.]

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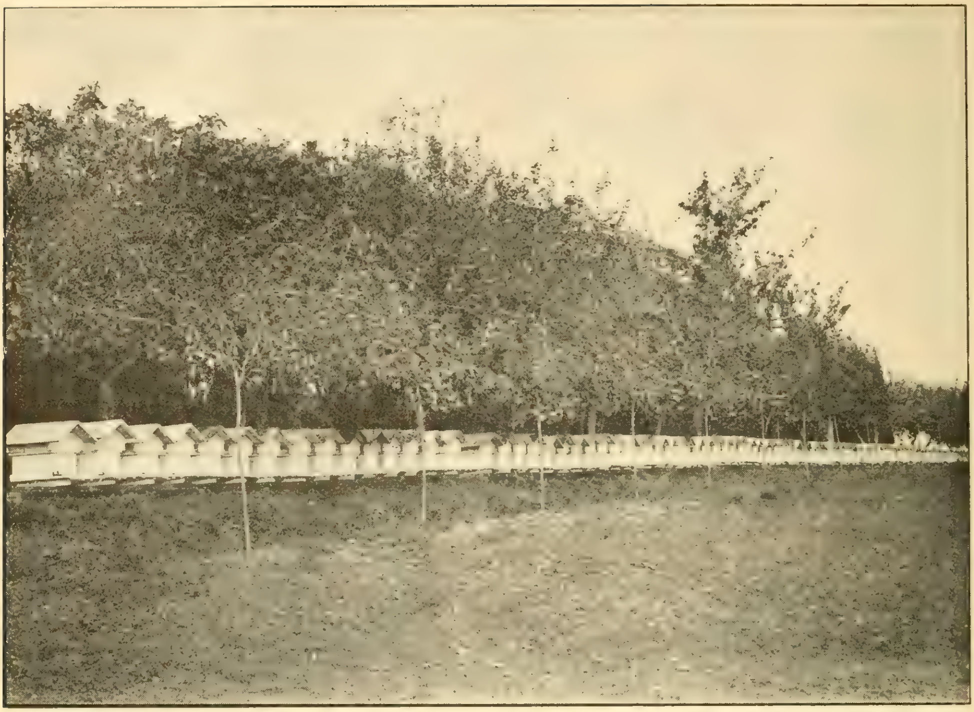
SOIL FERTILITY AND HONEY PRODUCTION

The Value of the Clovers for the Purpose

Paper presented by Prof. H. A. Surface, of Harrisburg, Pa., at the convention of the National Beekeepers' Association in St. Louis.

It is generally agreed that we can not afford to plant for nectar or honey production alone. In other words, to sow a field to any kind of crop, merely for the sake of the honey it might produce, is scarcely profitable. If, however, the field crop can be made a successful primary feature, the factor of honey production as a secondary feature may be entirely clear gain, as most profits come from comparatively small things. We note, for example, that the packing-houses of Chicago utilize absolutely every part and by-product of the hog excepting the squeal, and it is now proposed that they utilize that in making phonographic records to aid the old-style noisy beekeepers in making more noise to help hive their bees.

In this day of keen agricultural competition every factor possible should aid the husbandman. Natural conditions are against success from continued cropping or from the old-style farm methods. It becomes necessary to keep up with the times by adopting such new methods as the scientific experts show are beneficial. It is impossible for any husbandman to succeed without considering as an entire unit all the factors that enter into modern agriculture. I mean to say he may be up to date in many things; but if not in all, he may fail. For example, he may select seed in accordance with the methods of Holden or Hunt; he may fertilize in accordance with the latest directions from Hopkins or Thorne, and may cultivate according to Hilgarde, and spray according to Gillette, Forbes, or to Howard; but when the crop returns are to be sought he must see the " handwriting on the wall " or hear the saddening statement that was heard by the rich young man who went to Christ, " One thing thou lackest." This is organic matter with soil fertility. We can not afford to buy enough commercial fertilizer to depend upon it entirely, year after year, as a sole source of plant fertility. It will eventually make a rich man poor. We do not have enough barnyard manure to

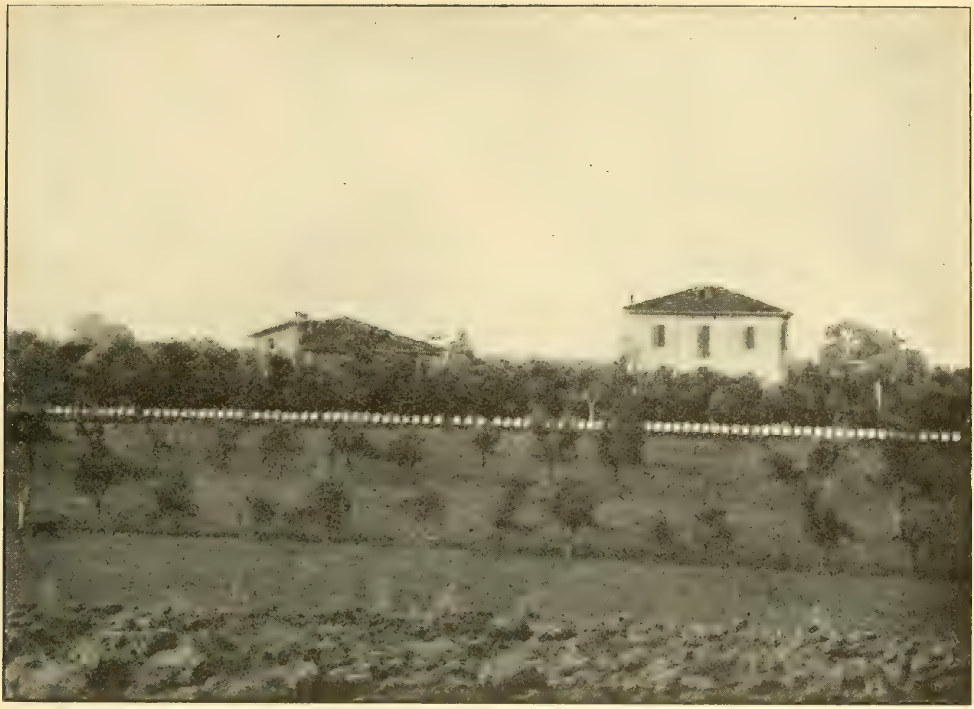


We have been favored by a visit from Mr. C. P. Dadant, as well as the Viscount Triaca, of the *Apicoltore;* Mr. Herrod, the Secretary of the British Beekeepers' Association, and Prof. Cotini, Director of the Italian Federation of Beekeepers. We have taken some photographs, which we are sending you, together with one of our apiary and of our Director, who is also instructor at the Royal Agricultural School at Imola.
Castel San Pietre, Bologna, Italy, Dec. 5. GAETANO PIANA.

meet the needs of our extensive agriculturists or horticulturists. How, then, can a poor man increase his yield by economical means? This is a question of such far-reaching importance as to justify our attention for a few minutes, even though at first it may be beyond any thing pertaining to beekeeping, and apparently inappropriate before this assembly.

Let us remember that the greatest element of plant food is that which is commonly called "nitrogen." It is by all means the most expensive element in our commercial fertilizers, and the most difficult to get into the soil by artificial means. At the same time, it is the most abundant element in the atmosphere. Practically eleven pounds of this material rests upon each square inch of the earth's surface. Why is it not directly utilized? It is because it must be made over or transformed into the kind of compound that can be taken up by plants. An illustration is to be seen in the lowly field bean. In its raw state it will scarcely sustain human life; but let it be properly cooked, and there is no more nourishing article of food for mankind. Thus, when the nitrogen in the atmosphere is transformed it becomes at once the most stimulating or invigorating element in the food of plants.

How is this transformation effected? Here is the important point of our story. This is done in nature's laboratory by myriads of organisms known as bacteria that live in a mutually beneficial relationship, known as symbosis, upon the roots of the legume plants. These are the members of the pulse or pea and bean family, botanically known as *Leguminosae.* Upon the roots of all members of this family these beneficial bacteria, gathering and transforming nitrogen, live in great numbers, forming little lumps or nodules. Upon practically each kind there is a different species of bacterium, as is shown by the fact that the nodules taken from the roots of different kinds of legume plants differ in size, shape, color, and general appearance These nodules, or lumps, are large enough to be seen readily by the unaided eye. Take up, for example, the roots of the common white clover, sweet white clover, the red clover, crimson clover, alfalfa, the locust-tree and the redbud-tree, keeping the surrounding earth with them until they are



A more distant view of one of the apiaries of Gaetano Piana, Castel San Pietro, Bologna, Italy.

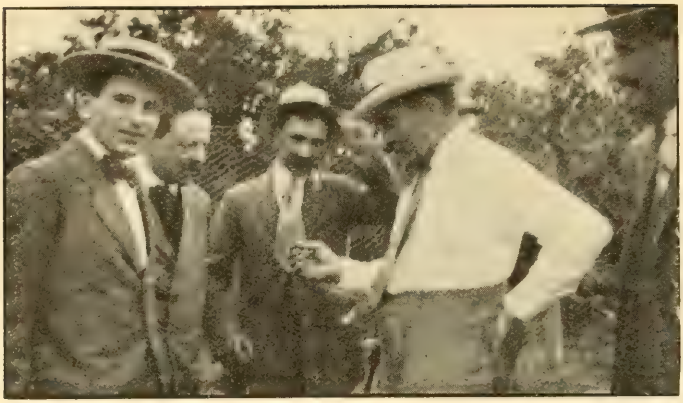
placed in water and very gently washed to avoid breaking off their most minute fibers. Note the small white, pinkish or brownish lumps that are there to be seen. These are the nodules which are homes of myriads of bacteria which are plainly seen when any lump is crushed under a compound microscope of high power. Not only are such lumps the homes of bacteria, but they are composed almost entirely of available nitrogen, transformed from the unavailable nitrogen of the atmosphere by the vital action of these microscopical organisms, and thus rendered fit for immediate use by the plants upon which they grow, as well as by other plants that may be grown in the same soil. Therefore, it can be seen that, the more of such legume plants are grown in any soil, the more fertile will the soil become from the standpoint of increase of nitrogen and organic material therefrom.

As the plants mature they draw upon the nitrogen stored in the nodules on their rootlets, using part of it in the formation of tissue, especially seeds.

A bulletin just at hand, No. 145, from the Agricultural Experiment Station at Brookings, S. D., says, "Every ton of clover hay takes 40 pounds of nitrogen from the air, and every ton of alfalfa takes 50 pounds from the air through the roots of these plants." Hence by growing these crops, or other legume crops, and returning them to the soil, either directly or after they have been transformed into manure, a supply of nitrogen in the soil may be maintained, provided, of course, that sufficient amount of legumes are grown.

So much for the primary story of increasing soil fertility, which is really more important than increasing the size of the farm. Now, there is a secondary point for consideration, which, for us as beekeepers, is of no small importance. This is the fact that, among the very best honey-producing plants of the world, are the legumes. In connection with crimson clover and locust-blossoms in the spring we have a close succession of alsike, white clover, sweet yellow clover, alfalfa, and sweet white clover, all of which the honey-bees work on to a very remarkable extent. Every one of these legumes here mentioned is of great benefit as a soil renewer, and at the same time they are recognized as being the chief honey-producing plants of America, with but few exceptions.

Another important point of the story is that, in addition to being soil-renewers and nectar-yielders, they are our greatest forage-plants. No plants contain as much protein, or are as beneficial as feed for live stock.



Mr. C. P. Dadant at G. Piana's apiary, Bologna, Italy.

The energy of the workhorse and the yield of milk from dairy cattle, increase when these plants are used either as pasture or hay. The growth of pork is greater when these plants supplement the grain feeds. The production of eggs is increased by their proper use in the poultry-yard, and, in fact, there is a report of a banquet of Western growers in which one of these plants (alfalfa) furnished not only bread and vegetable food, but also a food used as breakfast cereal.

To get the benefits of such plant growth for the beekeepers it is necessary that they bloom, and that the bees have opportunity to visit the blossoms. This means they should grow at least until the blossoms are commencing to fade or wither. It is known that the heaviest nectar secretion is just at the time of the opening of the bloom. After a flower has been visited by a bee, and fertilized, the secretion of nectar stops and the blossom fades and drops. Here again, good agricultural practice is in accordance with apicultural profits. It so happens that the best results for hay or stock food are obtained by cutting just before the seeds form, which is just after the blossoms have passed their stage of perfection and are withering: also, when these crops are to be turned down for soiling crops the best results are obtained by plowing them down when they reach this same stage of perfection of development. To plow down a great crop before blooming means to put into the ground too much water in the form of thin sap, and it is supposed there is special danger of souring the soil then. The juice in a plant commences to become thick and sticky after it has passed the important vital period of full bloom. That is when it can be turned down with safety, and is also the time when it has done its greatest work in transforming and fixing nitrogen; but let it be remembered that the fertility is not lost by using the plant as stock food. If the manure, liquid and solid, is saved and returned to the field it will have as great fertilizing value as though it had been plowed down, and the grower will have the increased benefit of its feeding value for his live stock.

From the further standpoint of the greatest fertility from the nitrogenous nodules it must be remembered that their best stage of perfection is reached when the plant is at its highest point of development, or just at the end of blossoming and the beginning of the ripening of the seed. Thus whether the plant be plowed down, or cut for the silo, or dried as hay, the best results for honey production, for soil fertility, and for animal food, are to be obtained by letting them reach a fair stage of development or perfection rather than cutting, as is the

Mr. Dadant, with Viscount Triaca, of *L' Apicoltore;* Mr. Herrod, of the *British Bee Journal*, and Prof. Cotini, of the Italian Federation of Beekeepers, at the Piana apiary.

Bees of D. M. Bryant, Ethelfelts, Va., working on rye chop as a substitute for pollen.

fault of so many husbandmen, before the blossoms open.

It becomes important, therefore, for every one interested in the tilling of the soil to see that a definite effort is made to plant legume crops at every opportunity. They can be used as filler crops at the time of year when nothing else is grown, as, for example, by sowing crimson clover just before the last time the cultivator is run through the cornfield, and growing a sod until the next spring. Last year the writer sowed three quarts of crimson-clover seed and half a pint of cowhorn-turnip seed to the acre in a cornfield; and after the corn was harvested he removed tons of the best turnips for cow food and table use, and at the present time has a good clover sod on what would be otherwise only barren and stubble. The time has come when it must be regarded as slothful for a man to leave his soil without a clover crop as we formerly regarded it for a careless person to leave his implements exposed in the field during the winter. From this crimson-clover sod, next May will spring a wealth of scarlet bloom, looking like a field covered with ripening strawberries, and humming with the busy bees as in the swarming season.

It must be remembered that the legumes are averse to thriving in acid soils. The soil wherein they are to grow should be sweetened by the use of at least one ton of lime or one or two tons of finely ground limestone per acre, before seeding. In the case of the corn, this can be done by spreading the lime broadcast just before planting in the spring.

Soil inoculation is one other important point in order to be sure of an abundant growth of the soil bacteria and nitrifying nodules, and, consequently, the legume growth. This can be effected best by sowing broadcast two or three hundred pounds per acre of soil taken from a field which has previously grown the legume crop that is to be planted.

Another means of inoculation is to sow the crop and let it reach fair maturity, or even go to sod again on the same soil. Then turn it down and seed again. After two or three repeated efforts on soil where lime has been used to prevent acidity, there will be an inoculation which will result in a good growth in the future. A third proposed means of inoculation is through commercial cultures prepared by different commercial concerns, and sent by mail. This is the most expensive and least satisfactory means of inoculation. As a rule, we do not recommend it. The best means of inoculation is by sowing soil from the field that has grown the crop desired. Apply it in the evening or on a cloudy day, just before sowing seed, and harrow in both soil and seed.

While as a rule each legume has its own kind of bacterium, yet there are exceptions, as, for example, in growing sweet white clover to produce the inoculation for alfalfa, as in this case the bacterium is the same. It is to be further remembered that the legumes have their own proper or best respective seasons for seeding, and the one to plant at any time of year depends upon the time of year when the ground is available for said planting. For example, we sow red clover and alsike in our grain-fields in February, when the ground is honeycombed with frost. Just as early as the soil can be worked in the spring we sow Canada field peas, with or without oats. A few years ago in our own fields we drilled Canada field peas, oats, red clover, and alsike, and had a good stand of the three legumes on the soil, so that, as the peas and oats were cut, the clover-field remained. Later in the spring, and just after corn-planting, is the proper time for planting cow peas, soy beans, and field beans or soup beans. In midsummer is the best time for sowing crimson clover, and in the early part of August is the proper period for seeding with alfalfa. Later in August, or early in September, we sow hairy or winter vetch, either with or without rye, but prefer one peck of vetch and two or three pecks of rye to the acre to give one of the best crops that can be used for a winter-cover crop for renewing soil fertility, and also keeping the bees busily and profitably engaged.

In conclusion let me say that the man who learns how to use one or more legume crops in each crop rotation, and keeps the legume always on his ground as a cover crop, will have honey in his hives and money in his bank.

ONE HUNDRED AND NINETY COLONIES IN A VILLAGE

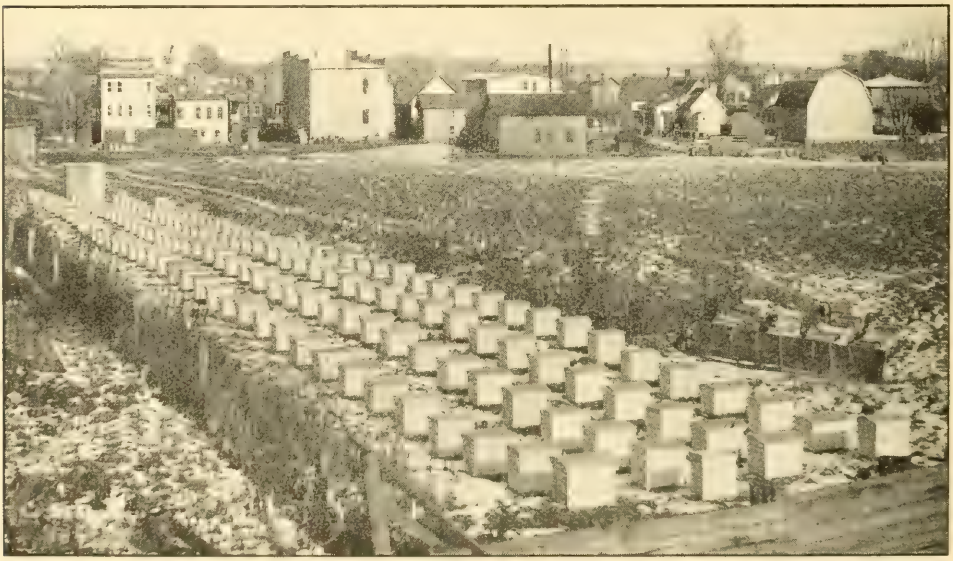
BY L. F. HOWDEN

Our apiary is located in the village of Fillmore, and contains at present 190 colonies. We have had very good luck with our bees, having produced as much as five tons of comb honey in a season, the average usually being 50 to 60 lbs. per colony.

We are using double-walled hives, and will transfer the 40 colonies on the other side of the fence this spring, as we have had several failures with single-walled hives. We have not lost a colony in our double-walled hives so far this winter.

The bees have been located two years as shown in the picture. They were formerly kept on our farm three miles from Fillmore. The instances are very rare when they have stung people, and I haven't heard of a single complaint. No one ever tried to make out that they are a nuisance.

The picture was taken from the Pennsyl-



L. F. Howden's apiary of 190 colonies in the village of Fillmore, N. Y. Photographed by C. A. Blastein.

vania Railroad bridge, located about four rods from our apiary. Our principal sources of honey are alsike, clover, white clover, and sweet clover; also fruit-bloom, basswood, and buckwheat.

Fillmore, N. Y.

[Is there another apiary of this size located within the corporate limits of a village? An apiary of nearly 200 colonies "in town" is quite rare, although apparently in this case the bees are just outside the main part of the village. We expected to use this article in our March 1st issue, but it reached us too late.—ED.]

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DO BEES SPREAD PEAR AND OTHER KINDS OF BLIGHT ON FRUIT TREES?

If So, is the Damage More than Offset by the Good They do?

BY CHARLES B. PIPER, M. D.

I am enclosing a communication received from Mr. Jackson, of the Experiment Station, Oregon Agricultural College. I had written to him about the possibility of the dissemination of blight by bees, and place before you what he has to say on the subject.

I have also perused Circular Bulletin No. 7, Crop Pest Series No. 1, "Fire-blight of Pear and Apple," by Prof. Jackson. The strongest statement in this publication is found on page 9. The statement is, "The fire-blight germs are naturally disseminated chiefly by insects at blossoming time. As noted above, active hold-over cankers exude a sticky ooze, attractive to insects, in which the bacteria are present in enormous numbers, and any insects visiting such cankers will become covered with the germs. If, after becoming infected in this way, they visit the blossoms for nectar, they inoculate the flowers, whereupon the germs find an easy access to the inner tissues of the blossoms through the nectaries."

Leaving this publication for a minute I would quote from Circular Bulletin No. 20, from the same Experiment Station, "The Pollination Question." On page 5 I read. "Probably 99 per cent or more of the transfer of pollen is done by insects. Prime among these may be mentioned the honeybee. Bumble-bees, ants, flies, and short-tongued bees play an important part. However, there is no doubt that the common honey-bee is by far the best of all, and it will pay every orchardist to have a few stands among his trees."

Realizing as I do the great menace to our orchards of fire-blight, it is naturally somewhat disquieting to think that honey-bees among my fruit-trees would be instrumental in disseminating blight. At the same time, we are all convinced of the value of bees as pollenizing agents, and it is a problem to determine at this time whether we shall do without the bees as pollenizers, and in a measure protect our trees from this dreaded blight. I am endeavoring to collect all the information possible, and have thought that you might possibly have some opinions gleaned from wide reading.

I have an orchard of twenty acres in the Bitter Root Valley, Montana, in which I have hoped ultimately to keep possibly 40 or 50 colonies of bees. At the present time I am undecided as to whether it might be a good procedure. That western country is undeveloped; the apiarists are usually unskilled and not up to date in their methods. and I believe that a good field presents itself to a person of intelligence and industry. However, I wish to be absolutely assured of the wisdom of any move before making it.

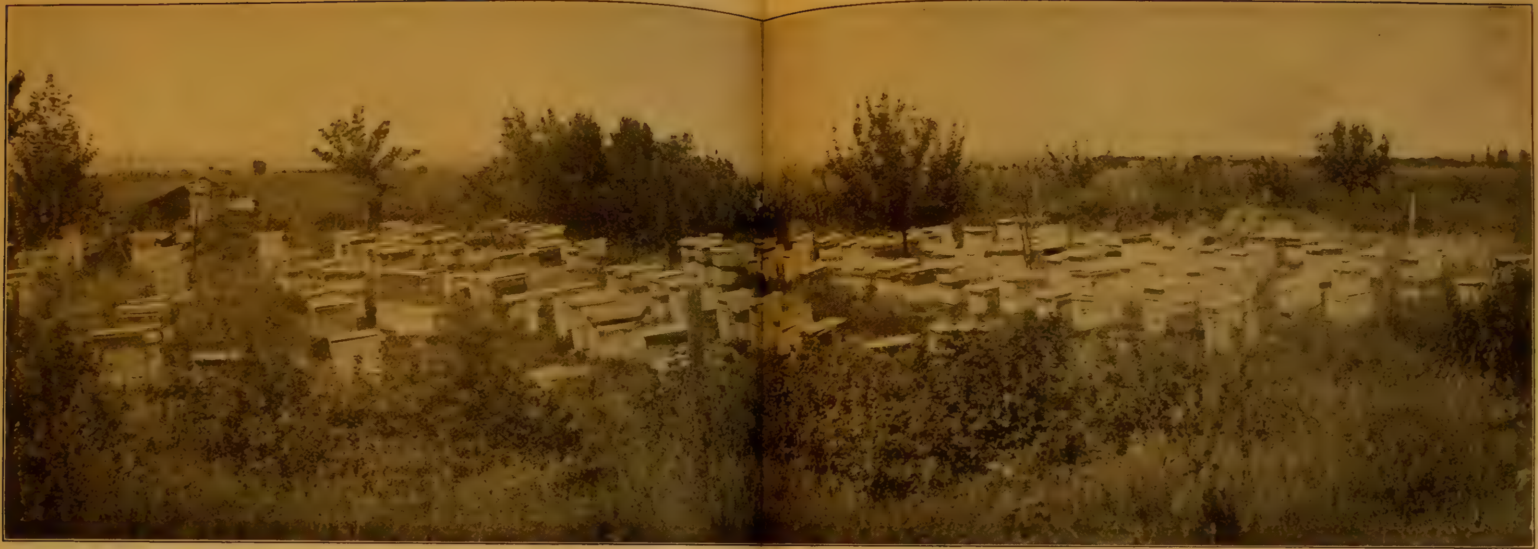
Milwaukee, Wis.

[The letter from Mr. Jackson is as follows:]

Our Crop Pest and Horticultural Report, dealing with many other important subjects than the one you mention, and our circular bulletin No. 7 on fire-blight, have been sent you. I would say that there is absolutely no doubt but that bees carry fire-blight, as all authorities who have worked on this disease agree. It is partially this that makes the disease so difficult to handle, since cross-pollination is so necessary, and we can not use any methods which would prevent pollination.

Corvallis, Ore., Feb. 2. H. S. JACKSON.

[You need not fear fire-blight, pear-blight, or twig-blight to any great extent. There are certain seasons when all phases of the blight are worse some years than others. A few years ago pear-blight was giving a great deal of trouble on the Pacific Coast. The pear-growers demanded that all the bees be removed from the immediate vicinity, and it looked as if there were going to be a war between the fruit-growers and the beekeepers. At that time I was President of the National Association, and as such I went into the territory to study the matter. I knew that bees were very necessary for the proper pollination of the pear-blossoms, and I felt very sure that, if



Part of A. J. McClanahan's 240-colony apiary near Payette, Idaho. This view shows a little over half of the yard. Part of the other half is shown on the cover of this issue.

the bees were removed, the pear-growers themselves would be the first to have them come back. I accordingly recommended that the beekeepers remove their bees from the vicinity of the pear-trees. This was done. But the very next year, and the year following, and from that time on, the pear-growers have asked the beekeepers to place their bees as near their pear-orchards as possible.

While we have to admit that bees *can* carry a blight of any kind, as they carry pollen from blossom to blossom, yet the good they do more than counterbalances the damages they do at certain seasons. To remove the bees because there was twig-blight, pear-blight, and fire-blight, would not help matters very much, because there would be wild bees and common ordinary insects that would scatter the blight just the same as it did in California after the tame honey-bees were removed. The only thing to be done is to get as many bees around the pear-orchard as possible because bees are almost indispensable for the proper pollination of a good many varieties of apples, pears, peaches, and certain stone fruit.

Prof. M. D. Waite, of the Department of Agriculture, went into this matter very exhaustively some years ago, and his decision was most emphatically in favor of the bees in spite of the damage they might do in certain years in carrying blight.

You doubtless would be interested in the last report of the Massachusetts Fruit Growers' Association of 1914 that was held at Springfield, Mass. If you have not seen this I think you would do well to send for a copy. I refer you to Harold L. Frost, of Arlington, Mass., or to F. Howard Brown, Secretary and Treasurer, at Marlboro, Mass. While this does not have much to say concerning the blight question, it does have some very important testimony on the value of bees as pollinators of fruit-blossoms.

I am also sending you our booklet, "Bees and Fruit." You will find further information under the subject of "Apple-blossoms" in our A B C and X Y Z of Bee Culture.

A couple of weeks ago I talked with Mr. Charles Repp, of the famous Repp Brothers, of New Jersey, the largest apple-growers, probably, in the United States. Mr. Repp told me that the more bees they could have the better, and that the question of blight didn't cut very much figure with them because they knew they must have the bees, and the matter of blight was a small item.

You, as a practical fruit-grower, know, of course, that the first thing to do when a blight shows itself is to cut it off. Of course, if ordinary apple-twig blight shows up you can not very well do this; but this will last but the one season, and next year it will disappear probably.—E. R. Root.]

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A 240-COLONY APIARY IN IDAHO

BY A. J. M'CLANAHAN

The photograph of the 240-colony apiary shown herewith is one of my out-yard 27 miles from my home at Payette, Idaho. It is located near the Owyhee River in Oregon, 7½ miles from Nyssa.

I run my bees altogether for comb honey. I am not genius enough to be an inventor, so I take all of the best bee-journals and keep myself posted on the very latest methods of procedure. I try in a small way whatever I think would be an improvement. If it proves better than my old way I use it; if not, I discard it. In this way, therefore, I lose no time in trying to invent new appliances.

I use a super that measures 17 1-16 inches, inside measure, and use loose section-slats without end-pieces, which make slats easy to clean and store away in winter. I use only the 4¼ by 4¼ beeway sections.

I still stay by the old bottom-board as made years ago, with ⅜-inch opening, and not reversible. I find our climate too changeable for very wide entrances in comb-honey production. Our surplus-honey yields are not as good as they were a few years back, on account of so many colonies shipped in from Colorado the last few years. Some have not been as careful as they should have been about the rights of those who were here before them. Ada Canyon and Washington Co., in Idaho; Malheur Co., in Oregon, all locations for apiaries, are taken up; but if one wants to come here and locate he can easily find apiaries for sale already located; and beekeepers here would make them welcome. I shipped the first car of honey that was ever sent from Payette Valley, 12 years ago, to Spokane, Wash. Now we ship from 10 to 17 cars of comb and extracted honey per year. Our average is from $2.00 to $6.00 per colony, spring count.

Payette, Idaho.

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THE ACT OF AN OUTLAW; HOW BEES MAY BE A NUISANCE

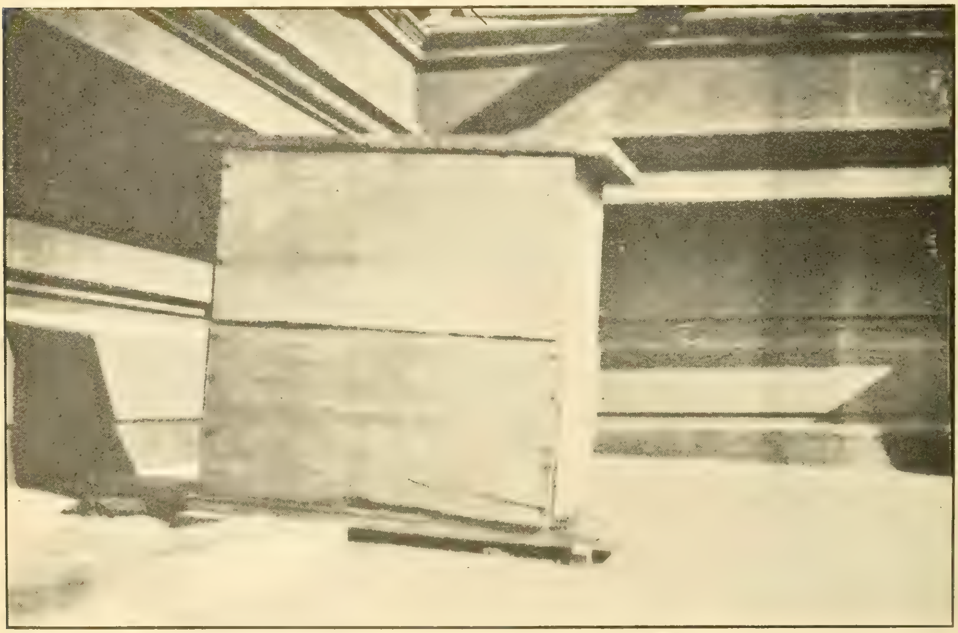
BY THE OUTLAW

Continued from the March 15th issue, page 222

With apologies to the Bard of Avon—the question was, to do or not to do; would it be better for the soul to submit to the humiliations and indignities of an outrageous city ordinance, or take up arms against such adverse legislation and attempt to overthrow it? or, as an alternative to both the foregoing lines of procedure, to continue to violate surreptitiously the orders and mandates of the city Solons—in effect, avoid all issues and follow the example of the natives of Kentucky and produce moonshine honey. Well, the Kentucky method was decided upon; and the result was that one bright morning the bees found themselves in a secluded niche on the roof, and there they are to-day.

To those who are unacquainted with conditions where there are ordinances prohibiting the keeping of bees within certain jurisdictions, it might be well to state that in certain parts of the country it is customary to find that there is a city ordinance prohibiting the keeping of bees within the limits of the town or city. Especially is this true of California cities. The reason for such ordinances, and there is a reason and a valid one, is the fruit industry. While the bees are very necessary to the pollination of fruit, they are also capable of making themselves considerable of a nuisance during the packing and drying of the fruit. To illustrate the manner in which bees are a nuisance, I will tell a story as it was told to me by an extensive producer of honey. He lives in a small town in the San Gorgonio Pass. The town is situated in the center of several thousand acres of fruit, consisting of prunes, pears, peaches, apricots, etc. The surrounding desert and mountains are his bee territory. The pasturage consists of sage, catclaw, alfilaree, and what is commonly known as wild buckwheat. His story is as follows:

"It was in the 90's, the time we had the three bad years. The third season I was in



The Outlaw's bees permanently established in a niche of the roof.

about as bad shape financially as the bees. Well, I did not see how I could buy sugar to carry them through another season. Still I did not want to see them starve, so I decided to bring the remains of my three apiaries to town and give them the advantage of the fruit-bloom. This I did. During the bloom the bees did well, making a living and a little more; but in the fall, when the fruit-drying season commenced, it brought trouble. The first intimation I had was when I was summoned to the place of one of the fruit-dryers. This dryer had about half an acre covered with trays of drying fruit; and when I arrived I found that the trays were literally covered with bees. Not only did the bees visit the fruit on the trays, but they also took an interest in the fruit that was being prepared for the trays, and two or three of the girls got stung on the hands, causing the working force to become demoralized. The result was that, within a few days after the commencement of the fruit-drying season, I decided that the best thing to do was to move my bees out of town. But the matter did not end with the removing of my bees, as the fruit-dryer claimed that, with every drop of juice that the bees removed from the drying fruit, they took a certain amount of sugar; and every thing that the bees got that was of use to them was to the direct loss of the fruit; that where the bees obtained a pound of sugar, the fruit was in consequence a pound short in weight, and this I am inclined to believe was true, and I later agreed to recompense him for the probable loss."

Gum trees (eucalyptus). The two trees to the right in the foreground are regular gums; the one to the left is a blue gum.

There is another matter to be observed in the keeping of bees in cities; and that is, to see that they are not situated in such a position that people who are unacquainted with bees are apt to run afoul of them and be perhaps seriously stung. For the benefit of those who contemplate city beekeeping it might be well to state two instances that occurred during the time my bees were situated in the garden. The first instance was when a young lady in a nearby house wandered out one bright sunny morning to dry her hair and sat down in the grass directly in front of the hive, and about two feet from the entrance. She knew nothing of bees, and might have been seriously stung had she not been warned. The other instance was when a child of some four years wandered into the garden, and, when discovered, was trying his best to remove the cover from the hive. So it behooves him who contemplates keeping a colony or so of bees within town or city to see that they are placed in such a position that it is impossible for some innocent person to be stung by them.

THE QUESTION OF PASTURAGE.

As pasturage has played an important part in my outlaw operations, a short discussion of the subject would perhaps not be out of place. As every practical honey-producer knows, the first essential to successful beekeeping, be it either city or country, is pasturage. My own observations here led me to the conclusion that, for the man with just a few colonies of bees, and who keeps them only as a hobby, the average city affords better pasturage than the country. While cities seldom have flora that produces heavy flows of honey, as in the sage regions for instance, yet they do have a larger variety of flora that produces honey for a greater number of days; so while it does not yield a profusion of honey, there is a longer and steadier flow. Then, too, the flora of the cities is not as a rule affected by drouth, as any natural lack of water is supplied by artificial means.

California cities, as a rule, are peculiarly

A blue-gum tree (eucalyptus) in bloom.

favored in all that goes to make ideal conditions for the business man who desires to keep just a few colonies, there being large parks; and throughout the residence districts many of the houses are surrounded by a veritable riot of vegetation. Then the streets are lined with trees, principally pepper and eucalyptus. And here a word about the eucalyptus, commonly called gumtree. There are many varieties of these trees, all coming from Australia. They all keep their foliage throughout the year, and are as apt to be found in bloom on Christmas as on the Fourth of July. The most common is the blue gum, the red gum being next, these being the most hardy varieties, although throughout the principal cities will also be found large numbers of lemon gum, sugar gum, yate gum, and ironbark gum.

From my own observations, the sugar gum is the most profuse yielder of nectar. The first time I saw a sugar gum in bloom it brought to my mind the instance of my first acquaintance with pamarosa of the West Indies, there being two reasons—first, the blossoms being similar, each consisting of a hollow cup in the center, surrounded by a mass of white hair-like petals; second, there being a number of bees around each blossom, each bee waiting as it were for its turn to obtain a load of nectar. The sugar-gum blossom, however, goes the pamarosa one better in that it has more odor, the odor being not unlike that of a ripe cantaloupe, and so strong that it conveys to one the idea that the blossom itself is fruit.

As an item of general information it might be stated that the eucalyptus is very apt to play an important part in honey production in California. The scarcity of lumber has resulted in a number of companies being formed for the purpose of planting eucalyptus, and there are to-day thousands of acres of trees that have been planted recently. So I think it safe to predict that, a few years hence, eucalyptus honey will be a staple the same as honey from clover, basswood, sage, etc.

And now a word of explanation: There will be many, no doubt, among the readers of this journal who will not approve of my attitude of mind, the procedure I have followed, or of the story I have written. To them I have no excuse to offer, no apologies to make. As to what I intend to do in the future, I can only say that I have no definite plans, other than that I will continue to keep my bees, and that I am thinking of working more for increase than for honey during the coming season.

San Diego, Cal.

[The eucalyptus is said to be "a wonderful producer of water-white honey, and as many as three bees at one time have been observed to sip up from a single blossom as much nectar" as they could carry.—Ed.]

A drive through the park. The trees are acacias and the shrubs myrtle.

AN IMPROVEMENT ON THE ALEXANDER BEE-VEIL

BY J. H. PETERSON

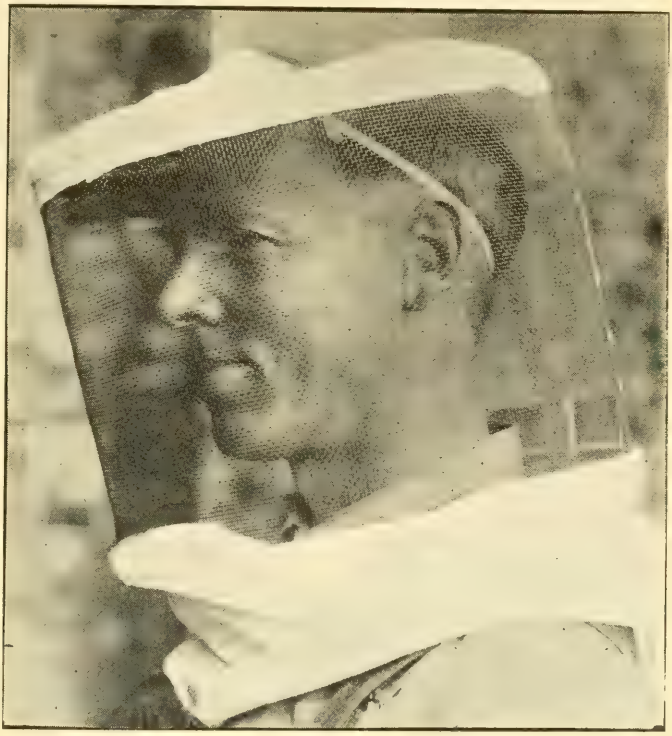
I think the Alexander veil is superior to all others for general use; but the one I use is a modification of the standard Alexander veil as sold on the market. I purchased one of those, but cast it aside. It did not furnish enough shade, and it did not stay fixed on the head as I want it to. However, I have improved it so that I think it is about perfect.

As I make it, it furnishes plenty of shade, being 12 inches in diameter. In the top edge I put a stiff wire, which assists materially in holding it in shape. My most important improvement, however, is the arrangement for holding it in place on the head. Without something of this kind it will fall around from side to side in a way that is a great nuisance. I sew a piece of tape about four inches long, and looped at both ends, across the top of the veil inside, about two inches in front of the center. I then tie a piece of hat elastic into these loops, and long enough to go around back of the head and fit snug. Sometimes, if the elastic is weak, I double it. This holds the veil in place, and is not at all uncomfortable.

I also sew a piece of cloth about 8 or 10 inches wide inside at the back to protect the back of the neck from the sun when working stooped over.

As thus made the Alexander veil becomes cool, light, and comfortable; and it can be worn without a hat, with entire satisfaction.

Ogden, Utah.



J. H. Peterson's improvement on the Alexander veil.

[We have tested this plan, and found it to be excellent. Indeed, it is the best suggestion that has been made yet, to hold the Alexander veil at such a point that the wire cloth can not touch the head at any point. There are many who like the Alexander principle; and any one having one of these protectors can easily put the idea into practical effect. —ED.]

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OUR APIARY ON THE APALACHICOLA RIVER, FLORIDA; HOW IT LOOKED LAST FEBRUARY THROUGH THE CAMERA

Catching Two Crops of Honey in a Season from the Same Bees

BY E. R. ROOT

The kodak views taken by our boys give a general idea of our apiary at Randlett's Landing, about 16 miles above Apalachicola. Fig. 1 shows the height of the platforms or scaffolding. When Mr. R. L. Tucker put up these elevated sidewalks in this place he placed them two feet above the highest water-mark ever known on the river; and during the years that have elapsed, high water has never touched the bees.

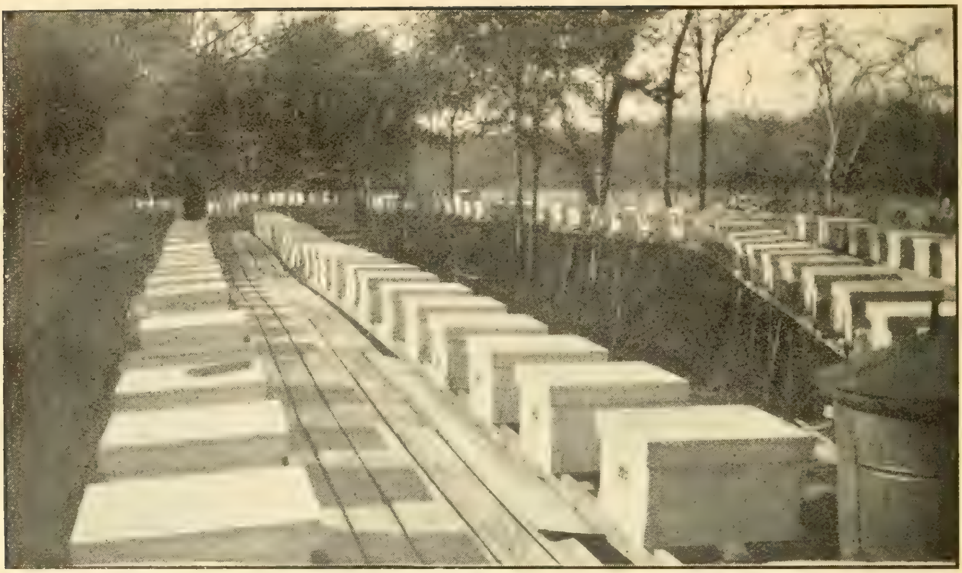

FIG. 1.—A general view of the Root apiary on the Apalachicola River, Florida. The 300 colonies are placed upon raised platforms or scaffolding, some five or six feet high, or above high-water mark. While these platforms are somewhat expensive, they are very convenient in affording easy access to all the colonies. There is no uneven ground, no shrubbery or weeds to interfere with the work or the flight of the bees, and a wheel-barrow has good wheeling to every hive.

One would naturally inquire, "Why not seek out land that will always be above high water, and thus save the expense of these high runways? There are only a very few locations of that kind, and they are all taken up. Mr. R. L. Tucker sought out this point because of the abundance of black and white tupelo and willow for furnishing early pollen; and he located well, as the subsequent history of the place has shown. Mr. Tucker finally sold out to Mr. A. B. Marchant and went north; but he has since come back, and located another scaffold apiary about four miles down the river. Mr. Marchant, the first year after he bought this scaffold yard, secured enough honey to pay the cost of the investment—bees, platforms, three buildings, and a launch, as seen in Fig. 3; but as he had more locations than he had bees to stock them he sold this one to us, and it is now in charge of his son Ernest Marchant.

As has been already explained editorially, the cold and cool weather of February and March gave us a little setback; but our Mr. Marchant believes that he will make his increase just the same. I told him I did not believe he could do it; but when I saw the honey coming in from black tupelo on the 17th of March I changed my mind. The bees dropped down at the entrances just as they would when working on basswood; and when a comb was pulled out of a hive the nectar would fall out like rain. But *black* tupelo is not considered a heavy source for honey. It comes in just right to build up the colonies for the main flow later from *white* tupelo, which is a heavy yielder of nectar.

It will be seen from Figs. 2, 3, 4 that the hives are free from weeds, shrubbery, and uneven ground. This is a big advantage. While the *ground itself* just beneath the platforms is uneven, high and low in spots, the platforms are level from end to end. Our men, therefore, have nice clean board walks to every hive in the yard. It will be noticed that these long elevated sidewalks, so to speak, radiate in different directions from the workshops, one of which is shown in Fig. 4. This renders it possible to have tools and appliances, and every thing needed, within convenient reach.

On the 17th day of March 100 supers, consisting of full-depth bodies, were placed on the hives; and Mr. Marchant was expecting to put on as many more the next good fly day. These supers contained frames of foundation. When a colony becomes strong enough, two or three frames of foundation from the upper story are put in the lower one, and an equal number of combs and bees are placed in the upper story, with frames of foundation between. This is spreading brood with a vengeance, and ordinarily in the North such practice

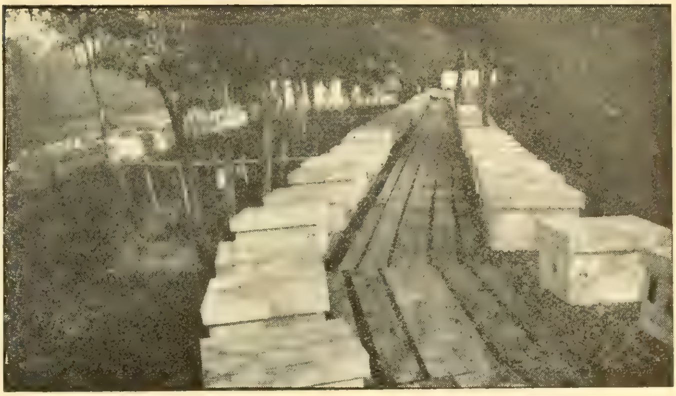

FIG. 2.—The other platform next to the river frontage of the Root apiary in Florida.

would be inadvisable; but Mr. Marchant assured me that in this climate it could be done in safety. In one case in particular I looked into a single-story hive, with about six frames, where a frame of foundation had been given. Twenty-four hours later it was fully drawn out, notwithstanding it had been raining all day, and a queen was beginning to occupy it. Mr. Marchant is unundertaking the problem of getting 6000 frames of foundation drawn out before he ships the bees to Medina. His plan is to build the colonies up to one, two, and three stories high, and then, just before coming back to the North. and after catching the main honey-flow, split them up into single-story colonies, giving each a queen. If every thing works out according to program we shall make a big increase, secure an early honey crop, move north, and then catch a clover crop. We have done it once. It remains to be seen whether we shall do it again.

At this writing, April 1, it would not be wise to say how many bees we can bring back; but if we have any kind of season Mr. Marchant will put in Medina more bees then we ever had before.

In the mean time our managing editor, Mr. H. H. Root, has gone south to Bradentown, Fla. About the 10th of April he hopes to go to Apalachicola and help the boys extract with some new power-driven machinery that he has devised. He is equipped with a camera, and probably will come back with a lot of material to present to our readers.

For further references to this Apalachicola apiary, see the editorial department.

BEARS AND SNAKES AT OUR APALACHICOLA APIARY.

There are bears and snakes at our camp. Just after our boat reached camp one day, Joe asked us if we saw that black bear swimming the river. We said "No. Why didn't you shoot him?"

"Didn't have any rifle, and hadn't seen him soon enough, or I would have roped him and brought him to our camp."

"Sure it was a bear?"

"Yes," said Joe. "I could not have been mistaken. As he reached the other shore he stood out in plain sight, shook himself, and disappeared in the woods."

Now "Joe" is no weakling, and not in the habit of telling things he can't do. He is six feet six tall and well developed and a giant in strength. He has been known to pick a 50-gallon barrel of honey from the ground, and set it in a wagon. If any man could tackle a bear in the water and bring him ashore alive he could. I told Joe if the bear came back while I was there *he* could have the "job" of roping, and *I* would look on—with an opera glass.

It seems that a bear had been prowling around the A. B. Mar-

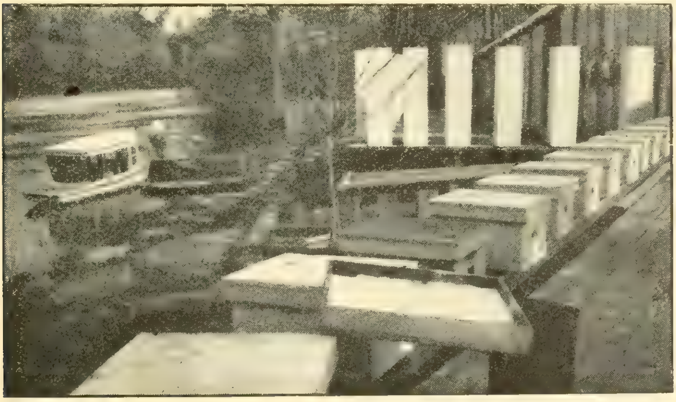

FIG. 3.—Looking out on to the river from the Root apiary. Our launch is shown tied to the dock.

chant apiary six miles above. He had pawed things over generally. This same bear was evidently making for our bees; but seeing and hearing our boat come up the river he took for the opposite shore, and probably will not appear again.

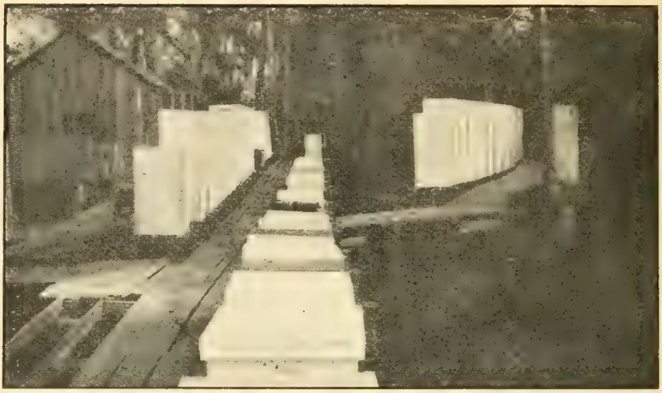

FIG. 4.—Painted hives in readiness for the increase at the Root Florida apiary.

Speaking about bears and their fondness for honey, Mr. A. B. Marchant told of the experience of a friend of his who watched a bear climb a bee-tree. His bearship ascended to the bees and then began biting and tearing away to make the flight hole larger. The bees attacked him so fiercely that he rubbed his eyes and nose with *both* paws. Down he fell pellmell, crashing through the limbs till he reached the ground. Nothing daunted he started up again and renewed his attack. Finally the bear got his paw into the combs of honey and began forthwith to smear his face, eyes, and nose with the sticky stuff. There was evidently method in his madness. With this extemporized bee-veil he began and finished his repast on the combs of honey.

This same eye-witness had seen other bears in the same act. A bear will always, he says, smear his face with honey as soon as possible, the evident purpose being to prevent the bees from stinging. How far it would prevent them from using their little weapons is difficult to say. But we do not suppose any of our readers would care to rely on this expedient in the absence of a veil or smoker. If they do will they please tell us how it feels—the honey or the stings.

Speaking of snakes, there were several large ones in the camp, and the boys feed and play with them. They are the so-called gopher snakes, useful in exterminating rats, gophers, and other small vermin. They are so tame that Ernest Marchant caught one and put it around Thompson's neck, and then took a photo; but the negative was poor, or we would produce it.

Camp life at our landing is not altogether uninviting. The boys buy their groceries by the wholesale, and then divide up the expense between them. Ernest Marchant is the cook, and a good one he is. The fishing is good, and squirrel-shooting fine. The camp is 16 miles from Apalachicola, and is seen from the river on the right side as one goes up. More anon.

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REPORT OF THE LONDON, ONTARIO, DISTRICT BEEKEEPERS' CONVENTION

BY R. F. HOLTERMANN

The recent meeting of beekeepers from the vicinity of London was pretty well attended, and there was no lack of interest throughout the meeting. Mr. H. Gibson occupied the chair.

"Spring Management" was a subject very ably handled by John A. Lunn, Fingal. He claimed that the foundation for spring should be laid the year before. First, there should be a young queen, for with such there is a better chance to bring the colony through the spring. The old queen might be good; but there are rarely as many young bees to go into winter quarters when an old queen is present. The requeening should be done the previous August. Protection is a good thing; but Mr. Lunn had seen colonies in box and other hives brought through the winter without protection. The bees should be packed on their summer stands. Each colony should have an abundance of stores; they should not be allowed to run short, as scant stores means less brood-rearing and a poorer colony. When spring comes in his locality (Middlesex County, Ontario), the colonies should be examined, if possible, in March for winter stores. If no honey can be seen between the combs, the bees should be given combs of honey, or fed.

The colony at that time should not be examined for queens. Probably two weeks later would be better, or as soon as pollen is brought in. At such a time the queen is almost sure to be laying. Then every comb in the hive should be looked over, and any drone comb removed. Or, if such comb is full of honey, it should be placed at the outside of the brood-chamber.

The bees should have plenty of pollen. If they are short, a substitute should be provided. During the spring of 1913, in Mr. Lunn's section the soft-maple buds had been destroyed by frost. He then put out a chop composed of oats, barley, and wheat. The bees gathered what they could out of it during the day, and he fed the rest to the pigs at night.

Some colonies are found weak. If any are queenless Mr. Lunn unites such with the weak colonies. From that time on, the colonies should be examined every ten days or two weeks. As soon as the danger of chilling brood has passed he begins to equalize the stocks so as to have them all in equal condition for the honey-flow. When the hive is fairly well filled he puts on another super with comb. He likes to get a colony in such condition that the brood-chamber and super of a ten-frame hive will be well filled with bees, brood, and honey before the start of the surplus-honey flow.

Care should be taken not to let a colony get short of honey. If short, Mr. Lunn likes to give them a comb of honey; or, failing in that, 5 lbs. of granulated honey; or if he can not give that, then a thick syrup.

BEE-ESCAPES.

Some discussion took place about bee-escapes. Mr. John McEwen claimed that the best bee-escape board he had been able to find is one with an escape in the center, and then an opening through the front strip of the escape-board. The bees, as soon as they find they are separated from the brood-chamber and queen, pile out through the opening in the side, and in an unbroken procession pass down to the entrance of the hive.

Mr. John Newton advocated having the escapes near the edge of the board. The bees naturally run down the sides and edges of the hives, and for that reason pass out of the supers more readily.

Drone-laying queen taken from a ball of bees. The worker shown has hold of the queen's wing. Both were dead when found.

R. F. Holtermann stated that he was getting out 250 bee-escape boards with the wire cloth in the board for ventilation, and to allow the heat from the bees to keep the honey warm.

QUEEN-REARING.

Mr. Wm. Elliott, in giving an address upon the above subject, advocated selecting ten of the very best colonies in the apiary the previous season, choosing on the following merits:

1. Color. The queen must be purely mated. His experience was that, among the best working colonies, there will be those with the best color.

2. A colony which starts brood-rearing early in the season, and one which has a large proportion of brood.

3. The workers should have strong, well-developed wings. The strong-winged bees can carry the heaviest loads. There is a marked difference in the build of individual bees.

The colony having the above characteristics to the fullest extent should be kept, from which to obtain larvæ for young queens. From the rest, take four or five of the next best colonies and insert in the center of the brood-chamber three or four combs with drone-cells. In the rest of the apiary try to prevent drone-rearing. Queen-rearing should begin from about June 5 to 10. (This applies to southwestern Ontario.)

Graft queen-cells in a couple of bars, and put these in a frame in the upper story of a strong colony with a card of brood on each side of the queen-cell cups. The object of this is to get royal jelly for priming the future cell cups. Next remove the queen in a good colony, saving her if she is young. Combs with only capped brood can be left in the now queenless hive, any other being removed. Give the colony a reasonable amount of pollen and honey, and be sure there is a plentiful supply of young hatched bees. Leave three places in the contracted brood-chamber for frames of grafted cells, the object being to make room for the colony.

The cell cups used are the Swarthmore. The royal jelly is to be taken from the cells in the super previously mentioned. The best time to graft is when the sun is nearing the western horizon. Stand at a west window, and turn your back to the sun so the light will shine into the cells. Take

16 prepared cell-cups and put a piece the size of a grain of wheat into each cup, jarring the royal jelly into the bottom; then with a proper instrument (Mr. Elliott has one that he made for himself), put upon the jelly the very smallest larva. Suspend the cell cups in the holes in the top-bar when ready, and insert them in one of the three spaces in the queenless colony. Do likewise with the second and third frames. Leave the cells until next day in the forenoon. Use but little smoke when examining. It will be found that the bees have accepted two cells out of three. Remove those not used.

Now, this colony has cost too much for one batch of queen-cells; therefore remove these cell cups and place them in the upper story of a strong colony, making sure that there is some other brood above, and also provide a comb of larvæ. Give the cell cups to a colony with lots of young bees. The queenless colony can start a batch of cells three times.

The argument that queens from cells reared for swarming are better is, in Mr. Elliott's estimation, faulty. The queen-cells almost invariably come from colonies which, on the face of it, can not be as carefully selected, and there is always the swarming impulse in connection therewith.

Mr. Morley Pettit, O. A. C., Guelph, gave an address upon the subject of marketing honey. He advocated the development of the home market, a good article, and fair margins for the retailer.

There was a pretty strong feeling manifested in the meeting that Ontario is producing about all the honey the Canadian market can take under present conditions.

Brantford, Ont.

THE INTRODUCTION OF MODERN METHODS IN SPAIN

BY OTTO HOLLANDER

According to the *Gaceta Apícola de España* of January, 1914, the Beekeepers' Association of Spain at its last annual meeting resolved to give a course of lectures in the various agricultural colleges and experimental stations of Spain, and to solicit the aid of the Government and of the various counties with this end in view.

This society has been doing excellent work for a number of years in that country, which is so well adapted to beekeeping by virtue of its mild climate and the variety of its flora; and through its organ, the aforementioned *Gaceta Apícola de España*, it is working very hard to convince the majority of the beekeepers of Spain of the advantages of the modern movable-frame hive over the old-style fixed-frame hive.

The average American beekeeper can hardly understand why it should be necessary that any society or paper should have to extol the virtues of the movable-frame hive; but it seems that there are as yet a good many farmers, and beekeepers as well, in some of the European countries who are slow to accept new ideas, and who still cling tenaciously to the old box hive of their forefathers.

In looking through these Spanish bee-papers one is rather amused to find that "honey produced in movable-frame hives" should be specially advertised, and, in fact, quoted separately, bringing, of course, a much higher price than the other. The following quotations are taken from the last number of the bee-paper mentioned:

Honey from movable-frame hives (miel movilista), 1st class, 100 to 110 pesetas per 100 kilos.

Honey from movable-frame hives (miel movilista), 2d class, 70 to 85 pesetas per 100 kilos.

Honey from fixed-frame hives (miel fijista), 50 to 60 pesetas per 100 kilos.

The prices thus range from $6.10 to $9.60 per 100 pounds for the former, and from $4.30 to $5.25 per 100 pounds for the latter.

Mr. Joaquin Layret is at the present time the President of the Spanish Beekeepers' Association, ably assisted by the Secretary, Mr. Santiago Baldó, and one can not but hope that their intelligent propaganda may be crowned with success.

[GLEANINGS is heartily in sympathy with the efforts of this association, as well as those of its Spanish colleague *Gaceta Apicola de España*, and we wish our brethren across the sea the best of success in spreading the "gospel of modern beekeeping."—ED.]

Smoke Method of Introducing Used 30 Years Ago

About thirty years ago I practiced the smoke method of introducing with this variation: I would smoke the bees and then take a frame from the center, with adhering bees, and shake them in front of the hive and drop the queen down among them; and after they had run in I smoked them again. My idea was to make it appear to the bees as if a swarm were returning with a queen, and I found it very successful; but as I have generally bought my queens I followed the plan given for introduction, and have nearly always had good success.

Hoopeston, Ill., Jan. 14. G. T. WILLIS.

Heads of Grain from Different Fields

Questions Regarding Dr. Miller's Honey Crop

1. Would not Dr. C. C. Miller's honey crop be an interesting subject for discussion on the relative merits of the eight or ten frame hives for section honey?

2. How about "shaking energy" into the bees by Dr. Miller tearing the brood-nest to pieces every week or ten days to destroy queen-cells?

3. With this method to prevent swarming, and not wishing any increase, how does he get his young queens?

4. How many supers did he have at one time on that colony that made 384 lbs.?

5. How many swarms did come out on him in spite of destroying the queen-cells every eight or ten days?

6. About when did the honey-flow begin, and when did it cease?

Fredericktown, Mo., Feb. 20. JAS. BACHLER.

1. Yes, that's a very interesting subject; but I hardly know how we can compare two things if we have only one of them to compare. There were no ten-frame hives in the apiary. It is true, however, that up to the time of putting on supers there was no chance for the queen to be crowded in perhaps any of the hives. When any queen had no longer room in one story, she either had two stories, or empty combs were exchanged for full ones, the latter being put where they would do most good. Neither is it certain that there was any crowding after supers were put on, for *abundance of super-room* was given, and I think that gives more room in the brood-chamber. All things considered, however, my guess would be that if any one has not on hand a supply of eight-frame hives he would do as well or better to use ten-framers.

2. I've had no very indubitable proof that any energy was added by the shaking. Certainly I did no shaking in any case where I thought it would do not to shake. If any one enjoys shaking I don't believe it does any great harm, although it's possible the bees might do just a shade better without it. Then, again, may be they wouldn't. I don't know.

3. Raise 'em in nuclei from best stock *only,* and then stick 'em in wherever needed. Besides, there was the superseding. Please get it into your head that there is no need of swarming to have young queens, for in the natural course of events *every queen is superseded,* and, of course, superseded by a young queen.

4. I don't know. Eight was the highest number on any hive at one time, and such hives were very scarce. I wonder why you ask about 384. Three colonies did better than that, one of them yielding 402.

5. I don't know. I've just looked over the first 20 numbers, and 7 of them actually swarmed. Possibly the general average was more than this, for it was about the worst year for swarming I ever knew. But, of course, no swarm was hived as a swarm.

6. Began about June 6, and closed somewhere about Sept. 20.

Marengo, Ill. C. C. MILLER.

Painting; Is it Done Chiefly for Looks?

If one takes the attitude that painting hives or buildings is done chiefly for looks it seems to me that he has to stand alone against almost the whole world. Our great railroad companies not only paint the wooden but even the iron bridges; in fact, every thing is painted regularly. If this is all being done for the looks only, it is time that we should find it out.

I have hives that have been painted for twenty years, and they are all in good condition. The corners have not opened up a particle. An unpainted hive will open up at the corners, and become badly warped, in three to five years in this climate. I think Mr. Doolittle's story of the unpainted house that lasted so long is like the man who used tobacco all the time and yet lived to a good old age. That man does not know how much longer he might have lived if he had *not* used tobacco.

MOVING APIARIES SOUTH.

Moving bees south in the winter seems to me a great scheme. In my locality, in September, when the honey-flow is over, the colonies are in the best of condition to keep right at storing honey; but the flow stops with the hives full of bees, mostly young bees too, and I have to leave from forty to fifty pounds of honey for them to live on through the winter and spring. Now, if I move south, ten pounds or so would be enough, probably, and I could extract perhaps thirty pounds per colony more, which, at 8 cts. a pound, would amount to $2.40. This would probably pay for moving the bees south and back again in May, and then the honey secured in the south would be all gain. The trouble would be to find suitable locations.

Brush, Col. DANIEL DANIELSON.

[In your figures regarding moving bees south and back again you do not take into consideration the risk of accident on the way, or of having bad seasons in the South when the bees get little or no honey, but have to be fed considerably. When these possible losses are all figured in as overhead expense, so to speak, the profits one year with another are less. But, at the same time, there are great possibilities in the plan. Of this we shall have more to say later on.—ED.]

Don't be in a Hurry to Condemn Your Own Locality

On page 895, Dec. 15, 1913, H. F. Wilson speaks of Central Oregon as being a good bee country. Now, for the benefit of such people as are in a fairly good place, and are making a little each year from their bees, I want to say, be slow about condemning your own country; don't sell out and move to a new field before making a thorough investigation, and don't forget that any country will have its disadvantages as well as its advantages. I have kept bees in Indiana and Washington, besides in Central Oregon, and I am sure either place is as good as this. We have no foul brood, neither sweet clover nor white clover. Sage furnishes nectar once in about four years. Whenever it rains on alfalfa after it blooms there is no honey from the blossoms that get wet.

Redmond, Ore. C. H. MILLER.

Camera Tripod to Support the Hive Close to Clustered Swarm

I have had swarms settle on all kinds of places, such as on the top of rail fences, the trunk of a tree, top of a fencepost, etc. I do a little in photography, so have a fairly heavy camera tripod on hand which I have constructed into an artificial swarming device.

I first bored a hole in the center of a spare bottom-board; then a small bolt fixed it solid on top of the tripod. I then get the hive for the swarm on top again, and adjust it to height by the thumb screws in the legs; put the entrance in contact with the cluster, and—there you are. I find it the easiest, surest, and most satisfactory method of catching a swarm I have seen or heard of.

ARTHUR T. HARPER.

Minnedosa, Manitoba, Can., Sept. 3.

Widening the End-bars of Danzenbaker Extracting-frames to Permit the Use of Eight Combs in a Super

I wish to tell of a change I have been making in our Danzenbaker extracting-supers that has added 20 per cent to their efficiency, and much more than that to their value in harvesting a crop of honey. Frames spaced as they are, ten in a hive, while just right for the brood-nest, make too much handling and uncapping for the amount of honey harvested. How to remedy this condition of affairs, and still preserve the good feature of removing the case *as a whole*, has been my study for some time. The problem has solved itself in this way: Rip out of ⅜-inch lumber, pieces scant ⅜ inch in thickness, and tack these on to one side of both end-pieces of the frames. With this attachment eight pieces of comb will fill a ten-frame super, giving combs for twenty per cent more hives, and giving the bees an equal amount of storage room while the beekeeper handles twenty per cent less of frames. A large saving of time is thus effected just when time is of its greatest value. The device delighted us with results last year.

TROUBLE WITH SMOKE METHOD OF INTRODUCING

As to the new way of introducing queens by smoking them in, while successful in the early part of the season, during a good honey-flow, later in the season I lost two fine queens. Unless a good honey-flow is on I still prefer the cage system—feeding the colony about a pint of thin syrup for about three nights, *during and after the release of the queen* by the bees; and, I might add, and *not opening the hive for a week*. This rarely fails us at any time of the year.

A "BEE-LINE."

Does not the word "bee-line" refer to the straight course an absconding swarm takes *en route* to their new home rather than to the course taken by bees while in quest of or returning with their loads of nectar.

Allow me to draw special attention to that very valuable recipe for soft candy given on p. 158, May 1, 1913. It is so simple and inexpensive, with sugar at 4½ cts. per lb., that all can afford to treat any doubtful colonies, whether indoors or out, to a cake of it.

Toronto, Ont. F. P. CLARE.

Securing Empty Combs for Bait

I have never learned how to get bees to build comb in sections or in the super, when there is no flow of honey, without liberal feeding. They will often occupy the supers in hot weather; and if no honey is coming in they may mutilate the foundation; but build they will not until they have honey to store. My only way of securing empty comb in sections is by letting the bees clean out all partly filled sections as soon as the honey harvest is over. These may be safely and profitably used the next season.

My method of using bait sections is to put one in each corner of the super, for these corners are more likely to be left poorly filled. With a bait section in each corner the super will generally be filled solid.

A SAFE WAY OF INTRODUCING BY THE CAGE PLAN.

I have not demonstrated the smoke method for introducing, and I have not observed to what extent it is necessary to smoke bees to make them good-natured so that the queen may be run in; but the method that has met my needs best is as follows: When the new queen arrives, remove the one to be superseded, by putting her in an introducing-cage made of wire cloth; and after she has been in the cage about 30 minutes, take her out and allow the new Italian, with all her escorts, to enter. Put them at once down between the frames; close up the hive, and the next day lift the cage and a frame of brood, and let two or three workers crawl out among the other bees. If there is no fight you may be sure that you can next release the queen; and you will be readily convinced of her safety by the way the bees back away from her to make room as she crawls about the comb. Hang the frame back in its place, and the work is done. This is not a new method, but I find it satisfactory for a small beekeeper.

Jamestown, N. Y. REV. J. W. WILSON.

Burning Out a Smoker to Get Rid of the Creosote

My way of getting rid of the creosote in a smoker is to put a little coal oil in the fire-cup and some more in the cap. A large quantity is not necessary, but there should be enough to soak the creosote well Let it stand a few minutes, then put a plug of wet paper or hard wood in the draft-hole at the bottom of the fire-cup, and light the oil with a match, letting it burn by laying the smoker down on its side with the cap open. When it has burned long enough, or if it gets to burning too fast, close the cap, and the fire will go out. The wet plug is to keep the fire from coming out at the bottom and charring the bellows-board. After burning out, scrape with a putty-knife or screwdriver.

Georgetown, Del. GEORGE W. LOUDER

My Method of Folding Sections

I use a table high enough so I can stand up. I take fifty sections, lay them in front of me with a cup of water handy. I slip a section off the pile with the groove down, and place my fore finger in the water, then over the grooves, till the pile is done. Then I turn the pile over and fold them. They are strong and square.

Oak, Neb. A. M. DEVITT.

[We have tried a modification of this plan to some extent. We spread a long row of sections on the floor or table, groove side down, and all grooves in line. With a soft marking-brush we wet the backs by drawing the brush along the whole row, one groove at a time.—ED.]

Newspapers to Keep Down Grass and Weeds in Front of the Hives

I have just been reading the way to kill weeds with acid, p. 821, Nov. 15. I have a method which I have been practicing for several years, for keeping weeds from growing in front of the hives. I use old newspapers—many of the big dailies are not good for much else. Early in the spring, before the grass and weeds start, I raise the front end of the hive-stand and insert the end of a newspaper; then smooth out in front, and lay small stones or earth on the corners to keep the wind from blowing them away. This will smother the grass and weeds.

Last spring I located an apiary in an old orchard seeded to alfalfa, and I found the paper very effectual in keeping the alfalfa from growing. There should be six or more layers of paper.

Denver, Col., Dec. 17. W. L. PORTER.

Hives Used 34 Years

On page 26, Jan. 1, I read what was said about old hives retaining their value. I have some hives in use in my bee-yard, called "Simplicity Improved." They were made in 1879. They are made of white pine, and were painted two coats. Two years before I commenced to keep bees I sold the hives for one Dan Royce, and transferred bees into them. I helped to make the hives, so I know what I am talking about. I made hives long ago *without paint*, of the same kind of material; but they are decayed and gone. I am using the dovetailed for all of my new ones, but I paint them. I have only 76 colonies now.

I have taken GLEANINGS ever since 1882, and believe I have every number up to this. I expect to take it as long as I live.

Cowden, Ill., Jan. 9. A. W. SPRACKLEN.

Uniting in Spring; Rearing Early Drones

I have a colony of bees which has lost its queen within the last few days. On one frame they have a few scattered cells of brood, which is all capped, but no eggs nor uncapped brood. They have started several queen-cells, none of which have brood or eggs.

I should like to know if I can unite this queenless colony with another late swarm of last season, which has a young queen. Both have plenty of honey, and the young queen has a nice lot of brood now. Can I do this successfully at this time of the year?

What is the proper way to handle one frame of drone comb to each hive? I now have the drone comb at the side of the hive. When would you move it to the center? Most of them are full of honey.

Ghent, O., March 30. R. E. McKisson

[We think it would be advisable for you to unite this weak colony with one of your stronger ones. To do this, remove the cover from the strong colony and place upon it a sheet of newspaper. Over this set the weak one after having removed the bottom-board. After a few days you will find that the bees will have eaten away the paper and united peaceably. It is best to do this in the evening after the bees have quit flying, in order that you may have all of these in the weak colony.

If it is extra-early drones that you are after, you can accomplish this by moving the drone comb to the center of the brood-nest at almost any time now; and in order to stimulate the bees to the rearing of drones, and to get the queen to lay in the comb, it would be a good plan to mutilate the cappings of the sealed honey. However, we doubt the advisability of trying to produce drones ahead of the time when queen-rearing can be successfully carried on. It would be better to wait until about fruit-bloom time before making such a manipulation.—Ed.]

Swarm Control and Increase

I have five hives of bees, and am in business so that I cannot be at home except Sundays. I should like to do something to keep them from swarming, and at the same time increase them. They are in frame hives, but the combs are not straight enough to remove without damage. My idea is to put a body with full sheets of foundation under each colony, with a queen-excluder between the two bodies to keep the queen in the upper body. When the bees start work below, remove the upper body with the queen to a new stand and either introduce a queen to the colony on the old stand or put in a one-frame nucleus with queen. Then the field bees from the old hive will return to the new one in the old location. The brood hatching in the old hive will keep it sufficiently strong. Is my theory all right?

T. H. Mettler

East Millstone, N. J., March 30.

[Your plan for swarm control, and at the same time making increase, is very good, excepting that we think you would have better results by leaving out the queen-excluder, and allowing your old queen simply to go down into the frames of foundation in the lower story and start a brood-nest. Then when you remove the upper story to a new stand you will have brood already there for your new start; and when the division is made you can supply the queenless colony with a queen.—Ed.]

Fresh Sawdust from Green Maple for Pollen

Replying to an article relative to artificial pollen, Feb. 15, I will say I have fed flour for 25 years with apparently good results, though I would never put it in the hives. I place it in the yard in shallow boxes—rye, graham, shorts, and bran thoroughly mixed. The coarser particles prevent smothering or getting the bees covered with it. They work it as readily and as greedily as they would natural pollen or even honey; and I never use honey or any thing to get them started; but when natural pollen is obtainable, and weather such that they can gather it, they desert the artificial.

A number of years ago, when living in the village of Hillsboro, there was a handle factory only about 40 rods from my home yard, where they used nothing but green hard-maple timber. All handles were run through a sandpapering machine, and the dust from this was as fine as flour, and was blown with sawdust into a heap outside. In early spring that dust pile would be alive with bees, gathering it the same as pollen, and carrying great loads of it into their hives day after day. Of course it was slightly sweet, and they utilized it in same manner as they do pollen. They brought in lots of it; but when natural pollen opened up they quit the sawdust.

Union Center, Wis., March 5. Elias Fox

Sawdust as a Food for Bees

After reading the articles and editorial comments with reference to bees working on sawdust, pages 154 and 233, the writer feels that some further evidence might convince the editor that perhaps there may be some nutriment (for bees) in sawdust. I will, therefore, make bold to offer a few facts relative thereto.

In connection with our planing-mill we have been operating a small log sawmill, on occasional days, since 1905, so that there is some sawdust lying around at all times. Every spring—yes, upon successive warm days any time after New Year, the bees appear in great numbers. We cannot operate this mill on warm days during the months of February and March, or until natural pollen comes in, without killing thousands of them.

From the sawdust of some kinds of timber, notably hickory and maple, the bees carry large loads in their pollen-baskets, and regardless as to whether or not they have pollen in their hives.

We know that bees may not for a long time work on rye chop set out in the open, and perhaps not at all, unless there is some sweet added to get them started; but they will readily find a pile of freshly cut sawdust. However, once started, they will take rye meal in preference.

Littlestown, Pa., March 28. C. F. Bucher.

Sawdust as a Substitute for Pollen

On page 154, Feb. 15, I notice an item regarding the use of sawdust by the bees as a substitute for pollen. My bees have obtained their first pollen from a nearby sawdust pile for a number of years The sawdust is freshly sawed, and they seem to seek the fine particles. If a substitute is provided, such as rye flour, they soon leave the sawdust.

In looking over my bees yesterday I found one colony which was afflicted with paralysis. Having used sulphur before in similar cases I used it this time, sprinkling it over the bees and at the entrance. In a short time bees were seen loading their pollen-baskets with the sulphur, and entering a hive near by. They did the same to-day. I think they will find themselves "stung" when they try converting sulphur into bees.

Barkhamsted, Ct., March 17. Delos O. Hart

[This is an interesting report, in that it shows that bees may be deceived. Now, then, if bees were deceived by the sulphur may they not be deceived in like manner and carry in a good deal of trash? One beekeeper wrote us that his bees liked ginger! They were carrying in great loads of ground ginger-root that happened to be exposed.—Ed.]

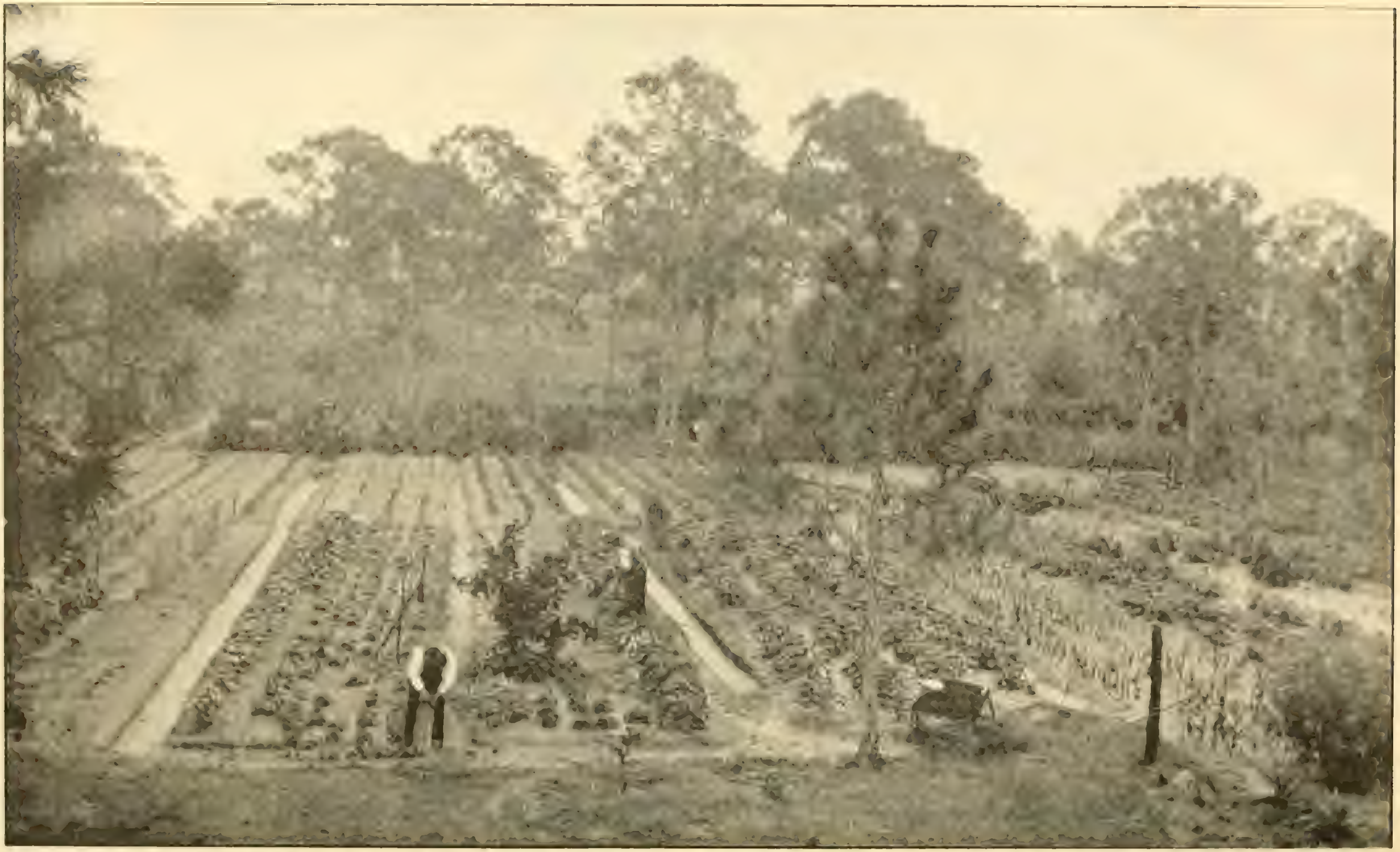

FIG. 1.—A glimpse of our Florida garden taken from the west. A. I. Root is in the foreground, stooping over, preparing some plants to set out, wholly unconscious that his picture and that of his garden was being taken by E. R. R. from the upper bedroom window of the house shown in the other view. His man Wesley, with the hoe, is shown in the middle foreground.

HIGH-PRESSURE GARDENING

A. I. Root

OUR FLORIDA GARDEN, ETC., MARCH 2, 1914.

I am glad to give you some glimpses of the best garden we have ever had in Florida, and, in some respects, the best garden we ever had anywhere; and I have always had a garden of some kind since my good mother (bless her memory) taught me to love gardens *seventy years ago.* I have only recently learned that here in sandy Florida we need not only *tile* drains but surface drains also; and in pictures 1 and 2 you will notice between every four or five rows of stuff there are deep wide paths that not only serve as walks, but that carry off the water when it rains so there is a surplus Now, this isn't all. At the lower right-hand corner of No. 2 you see a bed of potatoes. Well, Wesley has been gradually "learning the trade" of turning under large amounts of green stuff; and when the bed was made, there was a swamp of gallberry, grapevines, blackberry, Bermuda grass, etc., about as high as one's head; and when I asked if he could get it *all* under he replied:

"Yes, sir; if you say so, *under it goes;*" and in due time it was all out of sight, and the mellow soil raked over smooth, rounding up higher in the middle of the bed. Perhaps I should add this "thicket" had been a favorite spot for the chickens for several years, especially when the sun was hot, as it was cool and shady, and no hawk could follow them into this shady retreat. I confess that when the potatoes were planted it was with some misgivings; but when they came up so promptly and were "knee high," in about four weeks it was one of my "happy surprises." On the left upper corner of cut No. 3 you will see some potatoes at about six weeks from planting. They are the Red Triumphs, and there are already potatoes as big as a goose egg, bursting up under those great perfect leaves as large as one's hand. *This winter,* the fact we have had all the rain one could ask for. is perhaps one reason *why* burying so much green trash has been such a success.*

Let me digress right here to announce *another* of my "big discoveries." We get

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* After Ernest took the three hills of potatoes, I dug one of the best hills and got 16 fair-sized potatoes, some quite large, and the hill was green and still growing.

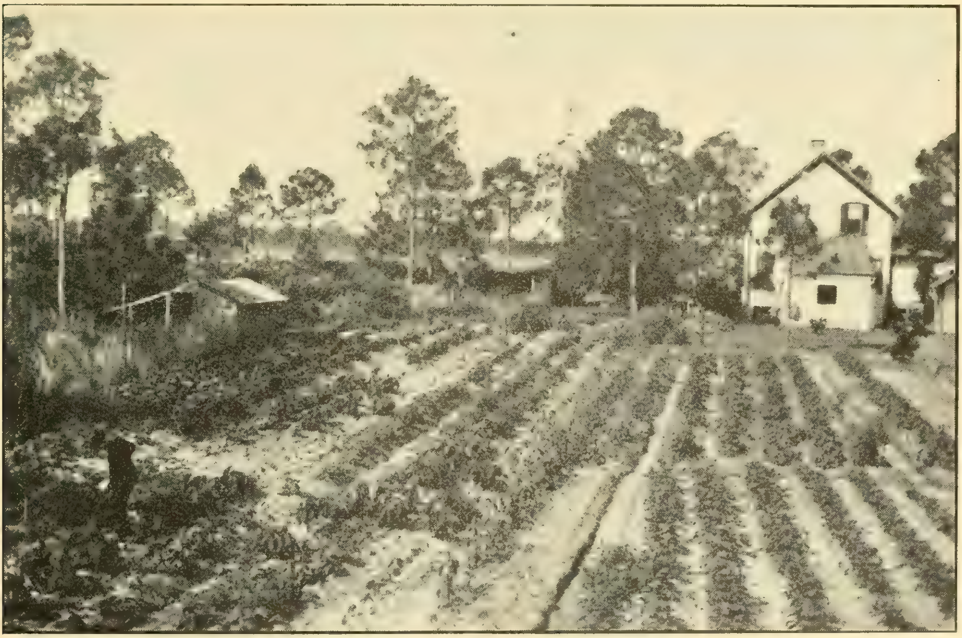


FIG. 2.—A glimpse of our Florida garden taken from the east. A. I. R. was anxious to get this picture looking toward the west because it shows his dasheen and his potato-vines a little better. He is seen with the hoe among his dasheen on the left. The potatoes are shown on the right. Speaking about the "hoe," A. I. would rather "play" with that than any gun, camera, fishing-rod, or ball-bat or any thing else in the world. He is never happier than when in his garden "playing" with his plants.—E. R. R.

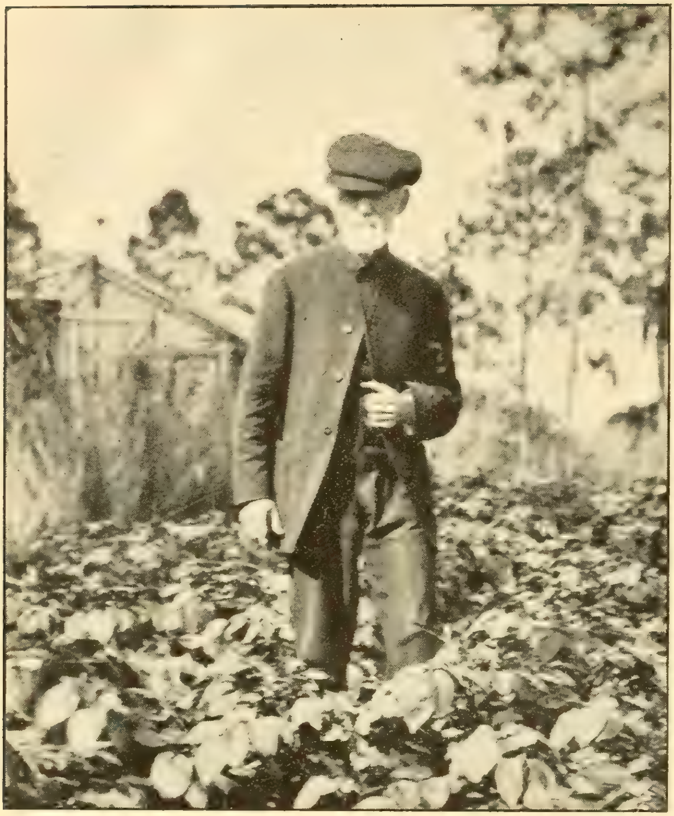


FIG 3.—How the potatoes grow down in Florida, where Colorado bugs, flea beetles, etc., are (as yet) unknown.

our new potatoes by "grabbling" them wherever we see the ground puffed up; and in this soil they are smooth, round, and perfect in shape. Now, in preparing new potatoes (that are not perfectly ripe) for the table they are usually scraped instead of being pared; and when I saw Mrs. Root scraping a panful I bethought me of the stiff palmetto brushes with which we brush the dasheen tubers before they go into the oven, and, sure enough, the brush removed the potato skins in a twinkling. As we have so much dasheen brushing to get them ready for the mail, I bought a variety of brushes; and a big stiff brush made for cleaning horses proved the best implement. Now, when Mrs. Root asks for potatoes for dinner I get the potatoes and Wesley washes and brushes them, and you can't imagine how handsome they look when they are ready for Mrs. Root.

I get them out of the ground first, because I love to do it, and because I think I can find them and disturb the still growing vine less than any one else. Why, it's like catching big fish to catch my finger under a whopper and turn him out, so handsome and perfect in shape.

Cut No. 3 shows a spot where I get them. Cut No. 4 shows a hill of dasheens that came from a single small tuber planted in January, 1913. The chickens got at it last summer; and when I got here it had made very little growth. It has now "stooled out," as you see, so there must be, I think, toward a peck of tubers. I gave it in December about a pint of fertilizer and cotton-seed meal, and it soon responded to the treatment. Besides the tubers there are enough green stalks and leaves to make several delicious meals.

Cut No. 5 shows what Ernest calls our "waterfall." The water above is fresh, while that below the fall is salt; and as this rises and falls with the tide, the waterfall—or rather, perhaps, the "rapids"—varies in depth from perhaps three feet to nothing at all, as the tide sometimes goes so high as to cover and obliterate the fall entirely. There is, however, almost always enough fall to make it what *I* call our "babbling brook," and I always enjoy its music. It is a favorite spot for the ducks; and if I don't get aroused promptly at 8:30 A.M. to let them out of their yard they get up a concert of protest that is louder than many "waterfalls." The alligator cave is in the rocks just above the fall, and visitors almost always inquire about it, and I have to tell the story over again about the alligator and the ducks. He has never come back since Wesley made him give up his unequal and unfair fight with the courageous hen that was the mother of the ducks.

The transparent water above and below the fall is very prettily embellished with pearly-white shells, and sometimes a duck's egg adds to the beauty of the bed of the rippling stream. It just now occurs to me that we ought to have a book where the readers of GLEANINGS who make us a call can put down their names, residence, etc. It will need a fair-sized book, for they come not only from all over the United States, but I might *almost* say from Europe, Asia, and Africa.

MOTH-BALL AND CREOSOTE FOR SQUASH-BUGS AND MITES.

I tried the moth-ball remedy for cucumbers and squashes, and it worked to a certain extent; but I did not get to try it till the vines were pretty badly mutilated and squashes were full of worms, some of them. The worms hatch inside of the squashes, melons, and cucumbers in this locality, different from what they do in Illinois and Iowa, where I formerly lived. I had some summer squashes, and quite a good many cucumbers that did better than my neighbors' in that line this summer.

In your poultry talks I have never known you to mention creosote (a by-product of coal, I think it is) as a good thing to get rid of mites. I generally have to apply it about twice through the summer to keep pretty well rid of them. I use two or three gallons with a brush, and go over roosts, nest-boxes, and walls about as high as I can reach, and generally spill it around on the ground under the roosts, and it answers for some time to come. Care should be taken about using it in very close houses, as it might smother young chicks, especially if the weather is very warm. I lost several young chicks at one time by creosoting a rather tight barrel. They went into it at night, and several of them smothered from the gas thrown off by creosote. It can be bought here by the barrel at 15 cts. per gallon, and perhaps a little higher in smaller quantities.

The Semet Solvay Co., of Ensley, Ala., manufactures it, and will ship by the barrel or in less quantities, I think. GUY N. VEDDER.

Birmingham, Ala., Oct. 15.

"HELIANTI," THE NEW "WONDERPLANT."

Almost 70 years ago my mother wanted a flower-bed, and father fixed one up with some very rich dirt, and seeds were planted. In due time a very thrifty plant appeared; and while father declared it was a weed, mother insisted it was one of her new acquisitions. Along in the fall it did become a wonderful mass of bloom, and this bloom looked exactly like little sunflowers. Father still kept joking about her great weed until near frost time, when somebody asked why the ground was heaving up about the plant as if it concealed a great hill of potatoes or some similar tuber; and then there was a big laugh all around about mother's choice "posey.'" It was an *artichoke* that did wonders under the stimulus of very rich soil and anxious care. What brings the matter up now? Why, a

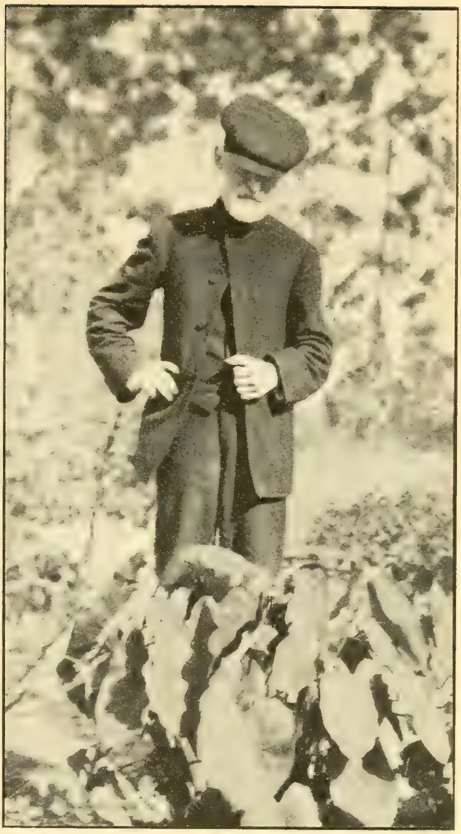
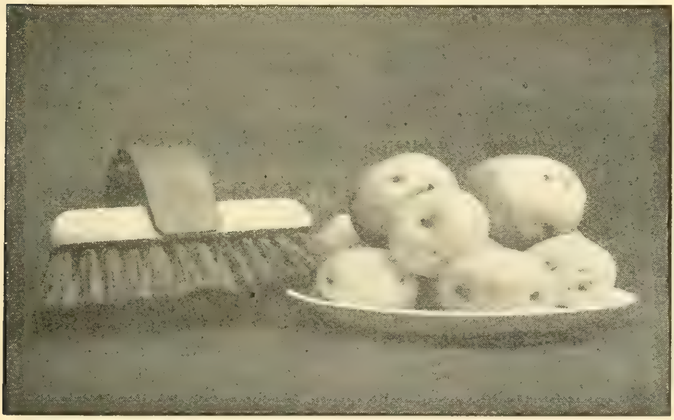


FIG. 4.—A clump or hill of dasheen where a rough small tuber was planted over a year ago. A. I. Root admiring his dasheens.



The potatoes that grew in six weeks, and the brush that brushed the skins off, instead of paring or scraping. They are the Red Triumph, and one potato is shown only partly "peeled."

FIG. 5.—A glimpse of the drainage canal where the ducks play, at the foot of our garden.

circular with a picture that recalled to memory mothers' flower, and with the picture one of an exaggerated hill of artichokes. Here is some of the reading matter:

BIG MONEY GROWING HELIANTI.

Helianti, the new "Wonder Plant," the great combination vegetable. As a money-maker it's a wonder. Unlike ginseng, you don't have to wait five years for a crop. A very showy flower and a new summer and winter vegetable of phenomenal merit. This new plant produces showy golden-yellow flowers like cosmos blossoms, in endless profusion, and immense quantities of fleshy tubers, somewhat after the style of sweet potatoes, that are splendid eating fall, winter, and spring. It stands both heat and cold, and will thrive anywhere in any soil or climate. What would you think of hay, potatoes, asparagus, cauliflower, oyster-plant, mushrooms, squash, and beautiful flowers, all on one plant?

The Postoffice Department and the Department of Agriculture should get after Burgess Seed and Plant Co., Allegan, Mich., for advertising an old plant under a new name, as something new. The artichoke is really one of the sunflower (*Helianthus*) family.

"COCOE," THE DASHEEN OF JAMAICA.

Dear Mr. Root:—I have been very much interested in your articles in GLEANINGS about the dasheen. Ever since you first mentioned it I have been wondering if it is the cocoe we get here. It is grown largely here, and the tuber is one of the principal foods. The "head," or "corms," as you call them, are given to pigs, and are used for planting cut up in bits. The young shoots or "buds," as we call them, are used along with "callalue" (a kind of spinach), and pumpkin "buds," in making a soup called "pepper pot." Of course, there is a lot of pepper put in, and other things.

There are six different kinds of cocoes grown here. These are black and white Commander; black and white Burban; Minty and Baddo. The tubers of the first five are eaten, and the first two are the best. The *last* named, the "head," or corm, is also eaten; but, say, I like it.

The general way of planting here is, after the land is cleared of bush, holes are dug about one foot by 1½, and 6 inches deep, and one "bit" (cut from the "head") put in and covered. They are generally planted on the side of a hill, and thrive best in gravelly soil. They mature at a year from planting, but can be eaten before, anywhere from eight months. The leaves of the dasheen in the pictures in GLEANINGS are just like the cocoe leaves. The cocoe grows to a good height, according to the soil. No manure is given here, but the land is mulched before planting. After it is planted it is just kept free of weeds—that's all.

I am sending you a tuber of the Black Commander under separate cover, as a sample. I hope it will arrive in good order, and that you will like it. This is only a medium-sized tuber. Some are twice this size.

We are having cool weather here at present, which I think is keeping back the bees from going into the supers and building up generally. Of course I am speaking for this locality only.

HERBERT A. KOLLE

Alma, Brown's Town, Jamaica, B. W. I., Feb. 28.

My good friend, we are exceedingly obliged to you for the above, and for the cocoe tuber. I cut off the lower half and baked it as we do the dasheen; and, although it has a slightly different flavor, it is, I judge, fully as good. The top part with the bud, I have planted near the South African "Amadumbe," and if this continues I shall soon have dasheen from all over the world.

HEALTH NOTES

OVEREATING; RHEUMATISM, SORE THROAT, ETC.

We clip the following from Terry's Health Hints in *The Practical Farmer* of March 14:

> From Victor, N. Y.: "I have rheumatism, swelled and painful finger joints. They are getting worse. Doctors say they can not cure me. Please advise diet." No drugs or medicines will cure your fingers. But there is every probability that nature can relieve you, so you can get along nicely, if you will live rightly in every way. Life will be a burden soon if you don't. Nothing else is so important as to cure yourself right now. Best foods are fruits, unbolted grains, butter, vegetables, and a small amount of properly baked beans or nuts when craved. Don't forget baked potatoes, and to drink two or three quarts of pure rain water per day.
>
> HIGH COST OF LIVING CUT DOWN TWO-THIRDS.
>
> How would you like to live where it gets 50 degrees or more below zero? How would you like to live where the first freight in the spring gets in about July 4th, by boat, and the last one in the fall early in October—nine months without the possibility of getting any thing by freight, and perhaps only letters to be had by mail. This is the condition reported by one of our readers, Isaac Dutton, Fairbanks, Alaska. He says: "When I was in town last 4th of July I got 21 copies of *The Practical Farmer* at once, which had come in by boat the night before." Think of what it must be during the long, cold winters not to be sure of having any papers or magazines from the outside world to read, unless they are laid in during July, August, and September. It requires close figuring to order things ahead for the year so as not to run out during the nine months when they are shut in by themselves. Perhaps friend Dutton will be getting this paper to read next July. We have a valuable report about cost of his living from this reader. He says: "I have bought seven of your health books for myself and neighbors. I am gradually getting around to your simple way of living. In the past I used to lay in nearly $400 worth of food supplies for the winter. Two years ago I laid in $350 worth. One year ago I reduced the amount to $250 worth. This last fall I put up a little less than $100 worth of food supplies, and I have an abundance; am feeling finely. I am 55, but actually feel better than I did when I was 35. Am growing young! have made up my mind that it is foolish to grow old. I am eating only the simplest foods which bring the most perfect health." Think of such a progressive letter from far-off cold Alaska. Verily, Americans lead the world.

There you have it, friends, with a vengeance. "The high cost of living" is not only a great waste of money (in fact, that is only a trifling part of it, comparatively), but our pains and aches, sickness, and death are the direct *result* of indulging in food needlessly high-priced, and *too much of it.* This good man away off in the frigid North finds out by actual experiment that $100 worth of food actually gives *better* health than the $400 he had been spending.

For some time I have been working (and *praying*) to find out how much an excess of food has to do with health, colds, grip, neuralgia, etc., for instance. Well, I have not had a bit of "cold" all winter (although Florida has had the most cold days on record), and I have been boasting I have not had "sore throat and earache" for several years. Along in March some friends from the North came; and, naturally, we had more of a variety to let our friends see the nice things to be had here; and, sure enough, the old sore throat came back. My health was so good, however, I soon rallied, and in about ten days was mostly over it. One day I was ravenously hungry. It seemed as if I could not "get satisfied," and, somewhat as an experiment, I ate "all I wanted." I felt a little uneasy after dinner, and decided I must get right at some hard work, and soon forgot all about the matter. In the evening I said, "Sue, my throat is stinging and swelling awfully. It really seems as if I must have this thing all over again. I have been careful to wear my overshoes when on damp ground, and I do not see what I *could* have done to bring it back." I went to bed with a hot soapstone at my feet and well bundled up, and this morning I am pretty near over it; but I am satisfied the "big dinner" caused it all. Suppose I had also eaten a "big supper," as the most of you do, and I almost always (after eating my two apples and half of a grapefruit) feel hungry enough for a "good supper;" where would my sore throat and earache have been? It takes self-control, *I* know, as well as you do; but elderly people who have given up hard toil mostly *must* learn self-control or take the consequences. Just try not eating any thing *at all* after 4:30 or 5 P. M., and see if Terry is not *exactly right.*

THE MODERN SKIRTS; WOMEN'S DRESS, ETC.

We have had no end of criticism through the press about the way women, and especially young women, see fit to clothe themselves in these latter days. I have once or twice suggested that the new fashion favors health, because it admits air and light, and is less burdensome on the wearer than the fashion heretofore has been. Of course I would not for a moment favor any thing that restricts rapid walking or young girls from running. At the same time, I would not for a moment encourage any thing tending toward indecent exposure. It seems so good an authority as the *Youth's Companion* has seen fit to enumerate some of its advantages. See the following:

> **Is there not perhaps something to be said in defense of the light, close-fitting modern skirt? Why view it with hostile eyes merely because it is "some-**

thing different"? Why judge it by the form it takes in its most indiscreet and extreme manifestations?

Compare it with the skirts of earlier fashions—the hoop-skirt—the elaborate draperies that accompanied the bustle, the full skirt that was stiffened into enormous size by crinoline and horsehair linings, the plaited skirt with yards and yards of excess material, the trailing skirt that gathered dust and filth from the street. In any such comparison the modern skirt is a triumph of common sense, comfort, simplicity, neatness, and health.

By "the modern skirt" *The Companion* does not mean the dangerous and ridiculous "hobble" skirt, or the skirt that has to be slit at the side to enable the wearer to walk; but the skirt that clears the ground by two or three inches, and contains only a half or a third as much material as its predecessors.

The new fashion does not distort the figure. For the first time in many years, women wear no absurd hump in any part of their toilet—no bustle, no puffed sleeves, no ruff, no pompadour. With the lighter skirt has come also the one-piece dress, which allows the weight to fall from the shoulders. That is a great gain.

The whole tendency of the change is away from the distorted and the artificial, toward the freedom, simplicity, and beauty of the Greek costume—a tendency not imitative but adaptive. As such, the change has much to commend it. It is in the abuse of the new fashions, not in the use of them, that immodesty lies.

The above reminds me that nearly all my life I have been protesting against the absurd and silly fashions for women's dress. When I was in my teens I sometimes quarreled with my sisters, and with girls with whom I was intimately acquainted, because of tight lacing simply because it was "the fashion." Then when bustles came in vogue, where they could not afford a manufactured bustle some of the girls wore folded newspapers. Then when hoop-skirts came in, I scolded more, especially when they were so large that a woman could not get through an ordinary doorway without tilting them up. The fashion of "tight lacing" I have objected to all my life; and I had almost forgotten it until the *Youth's Companion* mentioned it, that tight lacing seemed to be finally out of fashion. God grant that it has gone for ever. I believe the best authorities in regard to the care of these bodies of ours say that nothing should be tight enough to impede free circulation; and right along this line for the best development of health there must be abundant ventilation. I have had considerable to say recently in regard to ventilating the feet. Whenever your feet get hot and sweaty, it is nature's protest, and a demand for more air; and so with other parts of the body. Now, if the modern style of women's dress is going to give them something sensible in that direction, and is going to give the mothers of our land better bodies, and enable them to give the world healthier children, shall we not thank God and be a little slower about criticising and finding fault?

Last, but by no means least, the modern skirts are a saving in cloth, and in that way it is a saving in expense. I think Mrs. Root said that some of the former fashions required three times the amount of cloth that is used now. And besides the money saved, there is less weight to be carried about. Not very long ago I spoke of getting rid, not only of every pound but of every *ounce* that can be readily spared in going about your work, especially in mild or hot weather. Old people especially will find their strength will hold out ever so much better or longer when they get rid of useless clothing or useless weight in the clothing. Select something that protects from the weather, and which weighs just as little as possible. In fact, I would not mind paying a pretty good price for something that gives protection with the least possible avoirdupois weight to be carried about. Notice how farmers get rid of surplus garments when working in the harvest-field. Of course, we do not all work in the field in that way. But all of us should have some muscular exercise every day of our lives, and all useless clothing should be laid aside, and, so far as possible, let us have this exercise out in the sun and open air, with just as little clothing as comfort and a reasonable degree of decency will admit.

"Running a Bill."

It seems economical, but really it is not. You feel that because you are not parting with cash at the moment, you are temporarily saving money; and you are usually sure that when the bill comes in you will be better off financially than you are at the moment. Of course this idea is delusive; you find on the first of the next month that the bills are larger and the accumulated fund less than you had expected.

Running a bill is subtly demoralizing. When you open a new account, you are scrupulous to pay the bill very soon after it is rendered; you wish to impress your creditor with the fact that you are an uncommonly desirable patron. After a while you feel that he has learned this fact, and you let him wait for his check while you impress a new set of creditors with your punctuality—and solvency. So you keep putting off and putting off the creditors who are "old friends" until finally it becomes a scramble to prevent their sending in an account headed by that discouraging item, "Bill rendered." When you sink into the "bill rendered" class, you have entered the second stage of indebtedness. The third is marked by the receipt of dunning letters, the fourth by personal visits from collectors, the fifth by menacing communications from lawyers.

It is difficult for men and women who have the habit of "charging" every thing to put aside money for investment. They have adopted a costly way of living. The ability to purchase what you will, although your pockets are empty, is an expensive luxury. The shops that permit charge accounts are the shops that ask high prices; a charge account usually means that you pay from five to ten per cent more for a thing than its cash value.

If you adopt the pay-as-you-go principle, you will considerably reduce your own high cost of living.—*The Youth's Companion.*

MAY [illegible] 1914

Gleanings in Bee Culture

VOL. XLII. MAY 1, 1914, NO. 9.

Announcing the New Typewriter

Oliver Number 7

We announce an amazing model—the OLIVER NUMBER 7 — a typewriter of *super-excellence,* with automatic devices and refinements that mark the zenith of typewriter progress. A marvel of beauty, speed, and easy action. Typewriting efficiency raised to the *n*th power.

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A model that means a higher standard of typewriting, longer and better service.

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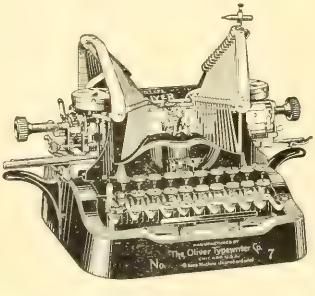

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Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.
H. H. Root, Assistant Editor. E. R. Root, Editor. A. L. Boyden, Advertising Manager.
A. I. Root, Editor Home Department. J. T. Calvert, Business Mgr.
Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLII. MAY 1, 1914 NO. 8

EDITORIALS

We wish to call particular attention to the article by R. F. Holtermann, on the importance of drawn combs in practical beekeeping.

……

The Editorial Staff of the Review

Our old friend Prof. E. G. Baldwin, of Deland, Fla., is now one of the associate editors of the *Beekeepers' Review.* We congratulate both. By the way, the last issue of our esteemed contemporary is full of good matter; and, what is more, it is a true Association organ devoted to Association matter. Mr. Townsend, the editor-in-chief, is an experienced beekeeper; and that is of supreme importance in the matter of selecting material for publication.

……

Excellent Wintering all Over the United States and Canada; Clover Prospects

In the 29 years that we have had editorial charge of this journal, we do not remember a single spring when the reports showed such universally good wintering. This means, of course, that bees throughout the country will be stronger and in better condition for the harvest.

There has been a large amount of rain and snow during the past winter, and this is all very favorable for the growth of clover and other honey-plants; but the precipitation has been so excessive that we fear a drouth may set in along in May or June. The United States Weather Bureau says that one extreme is likely to be followed by the other. We can only hope that history will not repeat itself this coming summer.

……

Latest from the Apalachicola Apiary

The latest reports from Mr. Marchant go to show that we have been having at our Apalachicola apiary a heavy flow from black tupelo—so much so that it has been crowding the queens, interfering with breeding and with the drawing-out of the frames of foundation. The boys were expecting to extract, beginning with the week of the 13th, to give the queens room to lay. Our Mr. Marchant is making a desperate effort to make his big increase; but the cool weather in February and March, and the heavy flow from black tupelo, have been interfering with his plans. He begs, therefore, that he be given a little more time; but the early spring in the North is shoving out the fruit buds ahead of time, and we may have to move one car of bees ahead of our schedule. Mr. Marchant doesn't like this a little bit.

……

Cellar Wintering at Medina; Making Increase in the Cellar

We reserved about 125 colonies at Medina, and the rest, 300, were sent to Apalachicola, as before explained. The Medina bees were left outdoors in double-walled hives until in December when snow was on the ground. They were then brought in on sleds and wagons and put in our two cellars—one under the machine-shop and one at the warehouse which is made entirely of concrete and brick. The walls are so massive in the latter place that a nearly uniform temperature is maintained, and the bees there were practically undisturbed all winter. Some of the colonies under the machine-shop were fed hard candy. The purpose of giving them candy was to stimulate brood-rearing, and it did. Our Mr. Pritchard, who has just taken the bees out, reports that many of them are much stronger now than when they went into the cellar last December, for breeding continued more or less all winter; and even the bees in the warehouse did not lose in strength, but rather gained. There was no loss in either cellar except among four or five that had been robbed of queens and bees for observatory hives in show windows.

Some Big Inspection Work in Arizona; How Did He Do it?

We announce the arrival of a copy of the report of the State Apiary Inspector to the Governor of the State of Arizona, from which we make the following clipping.

Phoenix, Ariz., Dec. 31.

Hon. Geo. W. P. Hunt,
Governor of the State of Arizona.

I have the honor of submitting my report as your State Apiary Inspector for the year 1913.

I was sworn in on the 14th of July, and entered upon my duties as Inspector of Apiaries.

I have inspected 26,838 colonies of bees; 19,858 colonies in Maricopa County; 3630 colonies in Yuma County; 2553 colonies in Graham County; 790 colonies in Pinal County, and 7 colonies in Pima County.

I found 115 colonies diseased with foul brood in Yuma County. I put all yards under quarantine where I found disease, and instructed the owners to destroy the diseased colonies by burning them.

I have appointed one Deputy Inspector for Yuma County, and I think we shall be able to rid the county of the disease.

I have collected from the five-cent inspection fee per colony, $966.30 to date.

J. P. Ivy, State Apiary Inspector.

We have submitted this report to Geo. H. Rea, inspector for Pennsylvania, who has had considerable experience, and who offers the following query:

Arizona Inspector of Apiaries appointed and entered upon his duties the 14th day of July, 1913; closed up his work and made his report to the Governor on Dec. 31, 1913; 147 working days between these dates, inclusive. Inspected 26,838 colonies of bees. I wonder how he did it.

I worked hard last summer, and managed to inspect an average of sixty-five colonies per day, while the Arizona report shows nearly three times that many. Since it is necessary for the inspector to spend practically one-half of his working hours in traveling and in conversation with beekeepers it would seem impossible that so much could be accomplished unless he skipped or skimmed over many hives. Or this might be true: The Arizona apiaries are large, and comparatively close together; but even then the figures, to an Easterner, seem large. I do not raise the question in a spirit of criticism, but desire to learn how my Arizona brother manages to accomplish so much.

……

How Spraying Liquids to Kill the Codling and Gipsy Moth is Decimating Whole Apiaries

More and more we are getting complaints of wholesale poisoning of colonies of bees—in fact, whole apiaries—as the result of ignorant spraying of fruit-trees while in bloom, or the ordinary spraying of shade-trees in New England to stay the ravages of the gipsy moth. It is getting to be a very serious problem in some parts of Massachusetts, where some beeyards have been literally wiped out. It is evident that there has been a widespread call for the article in our Feb. 1st issue, page 91, by a New England Veteran on the subject of "Wholesale Spraying of Blossoms Causing Wide Disaster." So great indeed has been the demand that the issue containing that article was *entirely exhausted* before we knew it. There are other good things in that particular number, but this spraying danger looms up so large that evidently hundreds of our readers have been asking for copies to lend to their neighbors who practice spraying in season and out of season. On the other hand, it is probable that there are times when spraying in bloom causes no damage. But we have too many reports of how bees have been poisoned to death—whole colonies and whole apiaries killed out—to make the practice safe.

N. B.—Perhaps there are some who would be willing to spare their Feb. 1st issue. If so, send them in so that we can mail them to others, and thus spread the truth where it can do more good.

……

"The Man who Never Loses any Bees During Winter"

In 1882 and '83 A. I. Root had a good deal to say in these colmns about "the man who never loses his bees." It was during that winter that the heaviest mortality occurred that was ever known; and yet this man, Mr. H. R. Boardman, then of East Townsend, Ohio (now renamed Collins), wintered his bees that year without loss, the same as he had been doing for years before. During the long interval he has been doing the same thing winter after winter; and three years ago, when there was such a heavy mortality, he did it again.

A few days ago we received a letter from Mr. Boardman, saying he had again wintered without loss. We wrote asking if it was in that same beehouse, and whether he had been doing it right along. His reply is worth publishing:

Mr. Root:—Yes, I have wintered again without loss, and have been doing so in the old beehouse of 35 years ago, and am still the man who winters without loss unless I yield to the temptation to do too much experimenting in my wintering methods.

I need not tell you that three years ago was a disastrous winter for the bees; but I wintered without loss and sold off the increase from my stock for $150 (for orchard pollination), and got a fair crop of honey. My success in wintering is worth all there is in the business now. One hundred colonies is all I care to keep.

Collins, Ohio. H. R. Boardman.

Mr. Boardman will be remembered as the man who held the secret for many years of how to keep liquid honey from granulating without the use of artificial heat. When we published Mr. E. B. Rood's method of putting the bottles in a solar wax-extractor, our old friend very generously came forward, saying that that was the method he had used; and in view of the fact that the "secret was out," he would tell the public of it.

Mr. Boardman is a man of unusual intelligence, a nature-study man, and a beekeeper who has just passed his 80th birthday, and this fall we plan to give his method of wintering in an upground beehouse that he has pursued with such success these thirty-five years or more. A full description was given by the writer, with a cut of his beehouse, in these columns, April 15, 1889, page 319.

……

Orchardists Asking for Bees

It is remarkable how the orchardists of the country are waking up to the importance of having bees in the orchard. The facts presented in another column, by one of the best pomologists of the country, are well worth reading. In this connection it will be interesting to note that a big demand for bees is springing up all over the country from fruit-growers—not because they have the bee-fever or wish to produce honey, but because they have learned that they can produce more and better fruit by having bees on their places.

By the time this journal will have reached our subscribers, many of our beemen will be locating outyards. Do not forget to help your neighbor the fruit-grower, and help yourself by spreading the truth about bees and orchards. Tell how the bees are actually breaking down the branches; of the loads of fruit they help to make possible on the trees. By spreading this knowledge it will be easier to secure fine locations, either at no cost to yourself, or at an insignificant rental price. Up-to-date fruit-growers are often willing to pay you for putting bees on their places instead of you paying them for the privilege. But the policy of the beekeepers should be to give and take on equal terms—put the bees on the place without charge either way.

In locating beeyards do not forget to fence them. Woven-wire fencing is recommended by Wesley Foster in his department in this issue; and it is about as good and serviceable as any thing we know of.

……

That "Comfortable Feeling" Over Those Indoor-wintered Bees in Medina

In Mr. Byer's department in this issue, page 337, he says he cannot understand why the cold February and March we had in the Northern States should cause us to have a comfortable feeling that our bees at Medina were in cellars, in a climate as "mild" as that in Ohio. "Mild" climate in Ohio! It makes us fellows south of the lakes smile a little. Yes, it is milder—but we have changeable damp weather. It may be down below zero for a few days, and then the next week the temperature may be 50 above. Breeding will get nicely started when another cold snap will come, killing both brood and bees trying to hover it. A long steady spell of cold weather, the hives well protected with banks of snow, is not nearly so hard on bees as extremes of cold and warm, with little or no snow. With these conditions of climate in February and March we could not help having a "comfortable feeling" that our Medina bees were in our big cellars where the temperature does not vary more than five or six degrees, and where there is plenty of fresh air.

If we had a cellar under the house, that was not frost-proof, small and damp, and had 150 colonies to winter, we should be decidedly more comfortable if those 150 colonies were housed in double hives *outdoors*. As the majority of people do not have an ideal cellar for wintering, the majority of beekeepers in Ohio do better with bees outdoors, providing, of course, there are suitable windbreaks and warm dry packing around the brood-nest.

……

"Slightly Exaggerated" Our Queen Business in Southern Florida

When the newspapers announced that Mark Twain was dead, he said the report was "slightly exaggerated." This is somewhat the situation in regard to a newspaper report which inadvertently crept into our columns, appearing on page 5 of our April 15th advertising section. The report went on to say that "E. R. Root, son of A. I. Root, millionaire honey-producer, and king of the bee business," etc., had "practically decided" on establishing in Pompano, 18 miles north of Miami, "a colony for raising queen-bees." Evidently the reporter thought that "colony" was not big enough; for later on he says that we were going to establish a "queenery that would mean several hundred more bee colonies." The interview is indirectly attributed to Mr. O. O. Poppleton; but with his usual accuracy of speech we are sure he did not authorize any such statement, much less any reference to A. I. Root as a "millionaire honey-producer," for this, of course, is very greatly "exaggerated." A. I. Root himself will be amused if not disgusted, as were we.

The facts are these: We were making a tour of Florida, investigating, but have come to no conclusion as yet. We have made tentative arrangements to raise queens at Pompano providing no other place can be secured. The objections to Pompano are the exorbitant freight and express rates on bees as a distributing point; and dragon-flies in April, that kill practically 90 per cent of the queens that are out to mate; and the month of April is the one month in all the year when we could least afford such a loss. The point in favor of Pompano is that bees and queens can be bred every month in the year.

We might say in this connection that there are several other exaggerated newspaper reports concerning our trip into Florida. The Florida newspapers are proverbially inclined to boom their own town; and if they can get a scintilla of truth they frequently exaggerate it beyond all semblance of fact.

A typewritten copy of the foregoing was submitted to A. I. R., who adds:

I am not a millionaire—never was, never expect to be, and don't want to be. I am sure God did not intend I should. I am not built that way.

Some More Important Evidence Showing the Value of Bees as Pollinators

Report of the Twentieth Annual Convention of the Massachusetts Fruit-growers' Association Held at Springfield, Mass.

A STENOGRAPHIC report of the twentieth annual convention of the Massachusetts Fruit-growers' Association lies before us. A careful perusal of this will convince the most skeptical of the value of bees in the making of more and better fruit from the standpoint of the fruit-grower. It contains several addresses of more than ordinary value—among them one from Dr. Burton N. Gates, Professor of Bee Culture at the Amherst Agricultural College, on the subject "Bees Indispensable to Modern Horticulture." This is followed by a paper by Wilbur M. Purrington, entitled "The Value of Orchards to the Beekeeper." This, again, is followed, after some discussion, by a paper from Earl M. Nichols, of Lyonsville, on the subject "Beginning with Bees, and How to Secure Stock." So far the evidence is from the standpoint of the beekeeper; but Prof. W. W. Chenoweth, the Assistant Pomologist at the Massachusetts Agricultural College, Amherst, next follows by a paper on the subject "Importance of Bees in the Cross-fertilization of Fruit" from the standpoint of the orchardist, and for that reason will have more weight with the fruit-grower. Our space is too limited at this time to permit us to give this address in full; but we take pleasure in presenting Prof. Chenoweth's summary, which will be read with unusual interest:

A thoughtful consideration of all the evidence before us, it seems to me, fully warrants the following general conclusions:

1. All tests, wherever made, and all general observations, agree that many varieties of apples, peaches, pears, plums, sweet cherries, and grapes are unable to set a crop of fruit when limited to their own pollen.
2. Some varieties of the above-named fruits are partially self-fertile, and a few are apparently wholly self-fertile, though the degree of fertility varies between rather wide limits, depending upon location, season, vigor of trees, etc.
3. All investigators agree that, as a general rule, the fruit resulting from crossing, even in self-fertile varieties, is larger and better developed than self-fertilized fruit. This is explained by saying that foreign pollen furnishes a greater stimulus to growth because it is more acceptable to the pistil, and not because it transmits size character of the variety from which it came.
4. All evidence at hand contradicts the theory that the wind renders any dependable assistance in bringing about cross-pollination among the above-named orchard fruits, while it does emphasize the importance of the honeybee as an agent in rendering this great service to the fruit-grower.
5. It has been shown beyond dispute that spraying open blossoms with arsenical poisons is injurious to bees. The orchardists who persist in this practice secure little if any benefit which would not result from either an earlier or a later application. Also he runs the risk of injury to the unfertilized open flowers, in addition to leaving thousands of poisonous cups which kill the goose which lays him golden eggs.
6. The character of the weather at blooming time is the final determining factor of the fruit crop. Cool, cloudy, or rainy weather at this season not only affects the development of the pollen, the growth of the pistil, and consequent development of ovules, but the action of insects is also reduced to the minimum, thereby lessening the chance for cross-pollination. It has been shown that excessively cool weather at blooming time often renders self-fertile varieties incapable of self-fertilization, though they still retain the ability to be cross-fertilized.

In conclusion it seems safe to say that the fruit-grower cannot afford to make very extensive plantings of any of the orchard fruits under discussion without making provision for abundant cross-pollination. This is most easily and practically done by choosing commercial or standard sorts that will bloom at approximately the same time, setting these varieties in small blocks of only a few rows each, and by establishing a few colonies of honeybees near or in his fruit plantation.

We do not suppose that this report as a whole is available to any except members of the Massachusetts Fruit-growers' Association, of which Mr. F. Howard Brown, of Marlboro, is Secretary and Treasurer, and Harold L. Frost, of Arlington, President. Those interested might possibly secure a copy by applying to either of these gentlemen.

A copy of this valuable report ought to be in the hands of every fruit-grower, as we consider it one of the most valuable that was ever published—valuable because of the data presented showing the intimate relationship that should exist between the beekeeper and the fruit-grower. Some very full information is given on the subject of pruning and spraying, and is the more valuable because it is clear up to date.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

Bees came out of cellar, April 13, "in apparently good condition;" white clover looks promising, and dandelion blossoms are just opening. Glad I'm a beekeeper!

Hello, Gleanings! I suppose you feel quite smart in your new dress. You do look rather nice. When all the women are coming out with their new Easter bonnets it's only fair you should have new head-gear.

The *Chicago Record-Herald,* one of the leading dailies of Chicago, if not the leading daily, has come out with the announcement that it will accept no more liquor advertisements; also two Pittsburg dailies. That means a whole lot.

Mention of workers taking a hand in a queen-fight reminds me that years ago I had several cases in which, after the introduction of a queen, I found a good many dead workers freshly thrown out. I took it that there were two factions, one for and one against the queen, resulting in a battle.

My bees were fed as soon as placed on summer stands. A solid frame of sealed honey was shoved into the entrance under the bottom-bars (that's only one of the advantages of that two-inch space under bottom-bars). Then a little board was tacked in front, leaving an entrance about ¾ inch square.

Arthur C. Miller catches it, page 286. That's right, Bro. Crane; he's always making trouble, and you never know where he'll start up next. After all, aren't you drawing it a bit strong to make "at least 35 lbs. of heavy syrup" the amount thought needed to be fed October 1? It may be true in some cases, but I think they are very exceptional. I doubt if I ever thought one of my colonies needed to be fed more than 25. Please remember that for every one like you there are 20 who will guess that a colony will get along with a good deal less than it really needs. Here's the way it's likely to be: "I guess that colony will squeeze through with 10 pounds;" and then when he doubles that and adds half as much more, like enough he'll have it about right.

I took a well-filled section that weighed 14 oz., carefully cut out the comb, melted it, and rinsed the resulting cake of wax. The wood (of course slightly daubed) weighed 31.6 grams (1.115 oz.); the wax, 13.27 grams (.468 oz.). Deduct weight of wood and wax from 14 oz., and we have left 12.417 oz. as the weight of the clear honey. The consumer who buys such a section at 25 cents pays at the rate of 32.21 cents a pound for his honey, since the wood and wax are of no value to him. If he can buy extracted honey at 15 cents a pound he is paying 17 cents for the looks and possibly better quality of comb honey. Yes, I know I'm a comb-honey producer, but the truth's the truth. [If you will turn to the last edition of the A B C and X Y Z of Bee Culture, page 608, and the former edition under the heading of Wax, you will find that your figures approximate very closely those made by ourselves. For instance, we state that a 16-ounce section of honey consists approximately of 14½ ounces of honey, a little over ½ ounce of wax, and about an ounce of wood. When we take into consideration the fact that your section weighed only 14 ounces to start on, your figures are very close to ours. But look here, doctor; don't you remember that honey in the comb, if well ripened, has a flavor and bouquet that the same honey out of the comb does not have? We never tasted any extracted honey quite the equal of a correspondingly fine article of comb honey from the same source. Wax itself has an aroma all its own. Separate that wax from the honey, and a part of the delicate flavor is gone. The process of extracting, exposure to the air, and the process of heating to prevent granulation, robs virgin honey of a slight amount of its original flavor. The original flavors in honey are very volatile, and are easily driven off by exposure to air or heat or both. While the ordinary consumer, perhaps, may not notice the difference, the connoisseur will; and any consumer, if he has a chunk of comb honey and a small amount of extracted honey from the same comb, will detect a slight difference in favor of the article in the comb, providing the liquid article has been extracted several days. Pardon us for quoting our A B C and X Y Z of Bee Culture again; but you will recall that we have made a strong point of this under the head of Comb Honey, and again under Extracted Honey. We sent these articles to a number of honey connoisseurs, and they all agreed that our judgment of the relative merits of the two kinds of honey were correct. Yes, sir, 'e; the writer believes that we ought to emphasize the fact that honey in the comb well sealed is a little superior to the same honey out of the comb equally ripened. If this were not true, the general public would not be willing year after year to pay more than twice the price for comb honey.—Ed.]

J. L. Byer, NOTES FROM CANADA Mt. Joy, Ont.

LATE COLD SPRING.

As intimated in the third paragraph below, we are having a very late cold spring. Bees had a fine flight March 17, for which we should be thankful indeed; for since that date we have had nearly a month without a day for bees to fly; but as the bees are held back, so is vegetation of all kinds, so perhaps the late spring may not be so bad after all.

* * *

CLOVER PROSPECTS.

What little clover went into winter quarters appears to have wintered well so far, although the cold drying winds of April that we are having are not helping matters much. But the frost is about all out of the ground; and with no frost present, we rarely have the "heaving" of the clover as is the case when we have thawing by day and freezing by night, when the subsoil is still frozen hard from the winter's cold.

* * *

DID THE COLD SNAP OF THE NORTH GO INTO THE SOUTH?

While we have to report a late cool spring, friends in North Carolina and other southern-central States report to me that their season is unusually early. But these reports came a few weeks ago, and I have been wondering if our cold snap might not be extending into the sunny South and freezing some of the extra-early vegetation down there. I sincerely hope such has not been the case, but shall watch with interest for future reports from various regions.

* * *

WINTERING IN CANADA AND OHIO.

Commenting on the unusually cold weather during February and March of this year, our editor expresses himself as not being sorry that their bees are for the most part in Florida, and the rest in cellars in Medina. (April 1, editorial.)

I can understand the matter in regard to the Florida outfit, for I believe they expect to do more than double the stock sent down there before bringing north again in the spring; but why such thankfulness about having the bees in the cellar in a climate as mild as that in Ohio? I have been in apiaries this spring where the temperature went below 40 two or three times in February, and the bees had no flight between Nov. 23 and March 17; and since the latter date they have been shut in steady till date of writing (April 13). During February only four or five mornings recorded higher than zero; and yet for all that the bees have not wintered badly by any means. As I have often stated, I cannot understand these differences in regard to outdoor wintering; and perhaps at this time the editor will more fully explain to some of us wondering mortals up here in the "cold belt." [We have much more to fear in a frequent *changeable* climate such as we have in Ohio than you have with your colder steady cold. For that reason, good cellars such as we have, where the temperature can be maintained, is better for our bees than the uncertain weather outside. We shall have more to say on this point in our editorial department.—Ed.]

* * *

WILL SPECIALIST BEEKEEPERS EVER AGAIN SUFFER SEVERE WINTER LOSSES?

This difference in conditions should be a factor in making calculations for the future; for we are quite safe in assuming that winter losses among specialists will never be as heavy as was the case among the great number of small beekeepers a few years ago. Some few have presented the argument to me when professing to have no fear of overproduction, saying that a bad winter or two would soon even up matters again; but as already intimated, I don't believe that there is apt to be any very general knockout very often, owing to the business being more in the hands of specialists who naturally give the bees better care than do those running a few on the farm simply as a side issue.

* * *

THE TEMPORARY SLUMP IN HONEY PRICES AND THE CRAZE TO GO INTO BEEKEEPING.

Although there has been undoubtedly a slump in honey prices in Ontario (only temporary I hope), this fact has in no way affected the craze for people to go into beekeeping; and as a result the demand for bees for spring delivery is very keen. Owing to heavy increase during the past few years in many places with uniformly good wintering, I believe that the heavy losses of some years ago are more than made up, and that to-day Ontario has the most bees in its history. Of course there may not be as many men keeping bees as formerly, for the farmers that were wiped out during the bad years have for the most part never attempted to get bees again—at least that is the case in our vicinity. But the increased number of specialists, with their larger holdings, more than make up for these exceptions.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.

STOCK IN BEE-YARDS MAKING THE BEES ILL-NATURED.

Last fall one-half of one of my out-apiaries was moved into Boulder close to the foothills. The colonies left at the outyard are in a pasture where horses run during the winter and early spring. There is no fence around the hives, and the horses have walked around among the hives more or less, but not enough to cause any trouble except that the bees are very cross. The bees at the home yard that came from this outyard are as gentle as need be. The horses have apparently irritated the bees and spoiled their tempers.

* * *

WOVEN-WIRE FENCE FOR OUT-APIARIES.

For an out-apiary fence that can be quickly built and as quickly taken down nothing can surpass a woven-wire one, four feet to five feet high. If a barbed wire is run around the top it will prevent horses reaching over and perhaps breaking down the fence. Posts made from old iron pipe 2 to 2½ inches in diameter sharpened at one end, and driven into the ground two feet or more are good. Holes are drilled through the pipe, and the fence fastened to the posts with wire. A good strong woven-wire stock fence is reasonable in cost, and, if five feet high, will keep out stock and also be a protection from molestation by thieves or mischievous boys.

* * *

FULL SHEETS VS. STARTERS IN SECTIONS.

With a rapid uninterrupted flow from alfalfa and sweet clover, or, for that matter, from any honey-plant, the advantages of section honey-boxes filled with full starters over a small starter are not great. With such a honey-flow an inch starter the full width of the section across the top, and a five-eighths starter the full width of the bottom, will give as fine a filling as a 3½-inch top starter and a half-inch bottom starter. There seems to be an advantage in the bees drawing out the comb in one cluster and then filling in around the edges later. They will leave scarcely any more pop-holes at the edges than they will make by gnawing out in a full sheet. There is an advantage in the full starter because it does away with the uneven effect of the store comb often built; also the filling of the sections is better in a slow or intermittent flow.

This season I am trying out the plan of putting in full sheets of extra-thin foundation, fastening in with a wax-dropper on the four sides. I expect also to put up several thousand sections with light brood foundation in full sheets waxed in on all four sides. Several thousand sections will be used with 2½-inch top starter, and about a half-inch bottom starter. Then a number with one-inch top starters will be used, and a half-inch at the bottom. A full sheet fastened at the top only, and coming as close to the bottom as possible, will also be used. Perhaps what I find out will not be valuable to any one but myself.

[We should be glad to get your report of this at the close of the season.—ED.]

* * *

PROSPECTS FOR COLORADO EXCELLENT.

Prospects still continue favorable. Alfalfa is in excellent condition, and sweet clover will not be outdone. Weather conditions have been ideal so far. The precipitation is more than an inch above normal so far for 1914, and the ground was saturated from the big snow of December, 1913. We have very favorable prospects for a good flow from dandelion, fruit-bloom, and other spring flowers, so that those who make increase early should be able to build all colonies and increase up ready for the surplus flow from alfalfa and sweet clover in July and August. Some farmers are predicting a dry May and June on account of the abundance of spring moisture; but there will be plenty of water for irrigation during May and June; and with hot weather in July and August, and a few good rains, we should get honey. Cold rains always hurt us if they come in the summer; and if we get a cold rain the middle or latter part of August, our flow so far as surplus storage goes is off for the comb-honey man.

My estimate would be that there are 25 to 35 per cent more colonies in Colorado than in 1913, and bigger and stronger colonies could hardly be desired. Six frames of brood the 15th of March is considerable for a colony; but I had them, and they went through a cold spell of 10 above zero without the loss of any sealed brood that could be found. The colony that can do that is a strong one, to my notion.

This seems to be a year when we can easily fill all our empty combs with bees and get a honey crop too; but there is many a slip, as we fully realize. A hailstorm, grasshoppers, cold rains, or excessively dry weather may each or all discount our prospects.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

On page 137, Feb. 15, the words "lumber pines" should read *limber* pines. I make this correction because the pines at that elevation are not fit for lumber, being of a very scrubby growth.

* * *

GOLDENS SHOWING UP WELL.

The golden queen that was at the head of my best producing colony last year is still doing fairly well at the middle of her third season. As a breeder she is worth much, and will be used for that purpose. I have goldens and leather-colored, but am decidedly partial to the goldens, not alone because they are bright, but because they are producing results, and are attractive besides.

* * *

IMPORTANCE OF PLENTY OF COMBS.

There is nothing that increases the yield like plenty of combs to catch the raw nectar. A colony that has to wait for a super of combs to be finished ready for extracting, to give it more room, is losing valuable time. A friend, whom I consider one of the best beekeepers in the South), said to me the other day, "If I had plenty of empty combs I could get from a third to a half more honey during the season." This gentleman has not lost a colony in two years. [See article by R. F. Holtermann, and footnote on page 331, this issue, that supports your position.—Ed.]

* * *

FEEDING IN THE SPRING.

Arthur C. Miller, page 131, says, "Stimulative feeding for spring should always be done in the fall," which reminds me of a time in my boyhood days when my mother instructed me how to feed the pigs corn. She said, "Give them ten ears for supper and ten for breakfast." I gave them twenty ears for supper so they would need none for breakfast. Mother thought I had a wrong idea of the matter, and so I think of Mr. Miller. [To make your illustration entirely parallel, should you not compare the feeding of bees in the fall to the putting of corn in the corn-crib? The bees do not eat all of that syrup in the fall; they put it in the combs and keep it for future use. —Ed.]

* * *

TOO MUCH FREE ADVERTISING.

I entered an agreement with a western fruit and farm journal to furnish an article for each month's issue. The first month I wrote on "The Relation of Bees to the Fruit Industry." For the second issue I submitted some of my ideas on hives, frames, etc. My copy was returned with the following letter: "Purely from the advertising standpoint, don't you think the publicity given the Langstroth hive and the Hoffman frame is a little too great for a free notice? I do and would ask you not to mention the names, or else give me another article."

I felt faint when I received the letter, but recovered in time to write the editor that it would be impossible for me to furnish more copy if I could not be permitted the use of common terms. This man is doubtless a success as an editor; but when it comes to bee lore he does not know even common terms.

* * *

HONEY-CROP PROSPECTS.

My last report spoke of weather conditions not being favorable for honey-gathering at that date, April 5. Cloudy conditions prevailed more or less until April 10, since which time the weather has been ideal for gathering honey. The orange bloom is now about gone, with the yield far below expectations, due to the fact that the season for orange "beat the bees to it," but would not have been so bad had the weather continued warm instead of the many cloudy weeks we had. But "what is one man's gain to another man's loss?" With the cloudy days came rain which gave new life to all vegetation, and undoubtedly extended the blooming period of the button sage. At the time the button-sage bloom was being held in check by the cool weather, there were millions of bees hatching to add to the gathering force as soon as the weather cleared. Those depending on the orange alone "lost out" with the weather; but where sage was the main source a benefit has been the result.

The button sage is yielding heavily, and colonies that are ready for the harvest are doing a land-office business. I believe we shall get at least four more weeks of flow from it, which will add greatly to our output. Then if the white sage should yield well, which now seems probable, it should add two or three more weeks to our heavy flow. Oh for the bees! but an enormous crop of sage honey will be impossible this season for lack of bees in condition to gather it. Some apiaries will harvest a large crop, while others a few miles distant will return but little.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

PREVENTING SWARMING BY REMOVING BROOD.

"I wish to prevent swarming by the removal of brood, as an old beekeeper tells me this is the best way. But I read somewhere that in removing brood only the sealed should be taken, as swarming was caused by any colony not having enough unsealed brood for the nurse bees to care for. In other words, when the unsealed brood in any colony is not sufficient to consume all the chyle prepared by the nurse bees, swarming is sure to be the result. Is this right?"

It is possible that there may be something in this theory. If I am right, those basing their claim on this lack in consumption of the chyle prepared believe that the distension of the chyle-stomach is what causes uneasiness in the nurse bees, and that this uneasiness is conveyed to the whole colony—so much so that the majority of the bees with the mother sally forth for a new home.

But I have never been able to see the logic in any such reasoning; for with the issuing of any swarm, and the finding of a home (when not interfered with by man), these nurse bees do not have even a few larvæ to which to feed their loads of prepared chyle. Without the apiarist to provide a home for any swarm, often days and sometimes weeks elapse before any home is found at all. The scouts will search for an old vacated hive, a hollow tree, or a cleft in some rocks; and if none is found, the swarm will move on some few or many miles, when the cluster will be formed again. Scouts are sent out again, and so on till a place for a home is found; and when such is found, comb must be built and supplied with eggs by the queen, and three days elapse before these eggs hatch into larvæ. So it has always seemed to me that, if this accumulation of chyle theory had any foundation in fact, the bees were fools almost beyond measure, and their instinct not equal to an emergency.

"Again, I have read that the main cause of the bees swarming was a lack of cells in which eggs could be deposited by the queen; and in removing brood the unsealed brood should be taken, in which case the queen could find proper employment for her powers, not only in the cells of the combs given to replace those taken with unsealed brood, but in the cells vacated by the emerging brood. Is this right?"

Now candidly, do you think it right to try to tangle any one who has never advanced either of these theories in this way? I am well aware, that, with a hive large enough to contain all the empty cells which any queen can occupy with her eggs during the whole season, little if any swarming will be the rule. Our beloved Moses Quinby told us, more than half a century ago, that with a box filled with comb large enough to provide cells for holding all the brood, honey, and pollen that all the bees produced by any queen could care for and bring in, such a colony would never swarm, and no one has proved Quinby incorrect. But such a box is not calculated for the wants of any beekeeper who wishes to produce gilt-edge honey to put upon the market, so is not to be considered by the one who is working for honey in the most marketable shape. I have tried taking away from two to four combs of brood from colonies that had gotten strong enough in numbers to swarm two weeks or less before the harvest of white honey commenced; and after comparing results in taking away both unsealed and emerging brood, I could see no difference in favor of either. If practiced in just the right time before the harvest, and before the bees begin preparations for swarming, fairly good results may be obtained.

"When removing brood to prevent swarming, where should the two to four empty combs (to replace the combs of brood removed) be placed in the brood-chamber so the queen will be most likely to occupy them, instead of their being filled with honey?"

I have tried putting all of them together in the center of the hive, placing any combs of honey the colony might have at each side next the hive, then the remaining combs of brood between these combs of honey and the empty combs set in; and where the bees are not storing much more than is used daily, this seems to put big-business ideas in the queen, and brings us as good results as are obtainable in using this removal-of-brood plan. Then I have tried alternating these empty combs with the combs of brood left with the colony, where nectar was coming in sufficiently so that the colony was at work in the supers of sections, and found that this brought forth better results than did the massing of the empty combs together. But I must record many failures with this plan of removing combs of brood to prevent swarming—not only in its failing to prevent, but in its being successful in putting much honey in the sections.

GENERAL CORRESPONDENCE

BEES ENTERING COMB-HONEY SUPERS

The Great Advantage of Drawn Combs Over Full Sheets of Foundation

BY R. F. HOLTERMANN

On page 903, December 15, 1913, Mr. McMurray refers to the natural like or dislike of bees to working in section-honey supers on account of their subdivided and crowded condition. I have not had the experience he describes, that bees, when given passages of communication, will close them up with wax or propolis. It may be due to locality; but I have found that bees gnaw comb foundation and stop openings when the supers are put on before a surplus-honey flow or after the sections and hive are crowded. They may also do it possibly between periods of flow when there is quite a length of time with no nectar coming in. Then, again, when a swarm issues, the bees are ready with a lot of wax scales—material which they can use for comb-building in their new home. If the swarm returns, owing to modern methods of manipulation, that wax may have to be deposited somewhere about the hive. In corroboration of this statement I might say that I have been able to detect the colony that swarmed in my absence by observing the wax deposited by the bees on the front of the hive. They were simply in a condition where they had secreted and were secreting wax scales for the comb they expected to build after first alighting to see that the queen was with them, and then, when next clustering, building comb. This second alighting proved to be on the hive, owing to my having previously clipped the queen's wings, and a portion of the wax was deposited by the bees on the front of the hive, and more would be taken care of in the hive.

THE ADVANTAGE OF DRAWN COMBS.

Bees do not care to go into supers containing only comb foundation. This is true whether the foundation is the size of a Langstroth frame, or of the ordinary section.

I do not hesitate to say that if the extracted-honey producer has no drawn surplus combs he will have much more trouble with the swarming impulse; and the surplus-honey crop, particularly if measured by the amount in the supers, will be materially reduced. Drawn comb invites the bees into the supers in a way that foundation entirely fails to do. The critical time in the prevention of swarming is when the brood-chamber is near the point of being crowded; and unless the bees' energies can be successfully diverted to the acceptance of the super as a part of the hive, they are likely to swarm. The difference between drawn comb and foundation in the majority of instances is just enough to turn the scale in favor of swarming.

When the bees have to draw out foundation, they store honey in the brood-chamber which would otherwise have been put in the super, thus depriving the queen of room to lay, with the result already mentioned. At the same time, the worker force is decreased if the flow is prolonged, so that there is a corresponding decrease in the surplus-honey crop.

After a careful observation of colonies to which foundation was given in the supers, side by side with colonies having drawn comb, I would estimate that, if the former would give 75 lbs. of honey in the supers, the latter would as easily give 100 lbs.

The first year that I began beekeeping afresh, and started with the twelve-frame Langstroth hive, it was a bad (perhaps I should say a good) year for swarming. Some of my help, perhaps myself as well, were not very skillful at detecting queen-cells in recesses of comb. I had no drawn comb, and I remember that on one Sunday fifteen swarms issued and clustered together, and this is an apiary that we were trying to run on the non-swarming plan.

One going into the production of extracted honey could well afford to pay 30 or even 35 cts. each, or perhaps more, for enough perfect combs to supply half of each extracting-super with such comb. I do not like to put more than two or three sheets of foundation into a twelve-frame super at one time. I am aware that there is a difference in the way in which individual colonies will take such treatment. The honey-flow also makes a difference. I almost believe that, if the hive is on a loose bottom-board, the new super, if it contains only comb foundation, should be put for twenty-four or forty-eight hours *under* the brood-chamber with a queen-excluder between. Localities may vary much in this respect; but during thirty years or more I have kept bees in quite a variety of localities, have had varied season and honey-flows, four or five varieties of bees and their crosses, and this is the conclusion that I feel justified in coming to.

In conclusion let me say that I am not ignorant of the method of putting some of the brood into the super. This undoubtedly helps in a measure, but only in a measure, and also has its disadvantages.

Brantford, Ont., Canada.

[We wish to indorse, as emphatically as we can, Mr. Holtermann's argument in favor of drawn combs in preference to full sheets of foundation. While the beekeeping fraternity at large will acknowledge of course that the former are superior, they have not yet begun to appreciate how much *more* superior they are. Last summer some colonies refused to enter extracting-supers with foundation, but they would enter supers with drawn combs without the least hesitation.

Another thing Mr. Holtermann brings out that will bear emphasizing is the value of drawn combs for preventing swarming. If we could, we would shout this on the housetop of every extracted-honey producer, because it will prevent the loss of a good many swarms, and the loss of a good deal of nectar that might otherwise be secured.

So important do we regard drawn combs that we sent down to our Florida apiary last winter 6000 frames of foundation; and one of the "problems" that our Mr. Marchant has had to tackle is to force the bees to draw these out and make increase at the same time. If he had had drawn combs he would have had 25 to 50 per cent more increase.

Many and many a time we see beekeepers who are careless about storing their combs. The worms get into them, and in other cases hundreds and thousands of them are stacked up in all kinds of heaps on the honey-house floor, where they get bruised and broken, and sometimes we find them in the back yard where the sun melts them down. The owners say they will pick them up "some other time;" but they don't. The facts are, these drawn combs, next to the bees themselves, are the best capital the extracted-honey producer can have. If a full sheet of wired foundation is worth, say, 16 cents, a frame of drawn comb ought to be worth 35. In a good year they might be worth even 50 cents.

The problem with many beekeepers should be to get their frames of foundation drawn out *before* the honey season. This can be done by placing a full sheet between two frames of brood, when the spreading of brood can be practiced with safety. If possible, get the combs drawn out in the fall, during buckwheat or soon after; and when once drawn, stack them up carefully in the honey-house, where they can be fumigated, ready for next season's use.—ED.]

SHALL APICULTURAL EDUCATION BE ENCOURAGED?

BY OREL L. HERSHISER

Beekeepers may be divided into two general classes, more or less sharply defined, one believing in offering the best of apicultural advantages and encouragement to any and all who may wish to learn the science; the other, including all who do not believe in so broadly offering such advantages and encouragement.

In the former class may be included the educators engaged in apicultural instruction in schools and colleges; bee-inspectors and government apiarists; authors of books on apiculture; editors and publishers of apicultural periodicals, and most of the writers, correspondents, and contributors to them; and most of the members of beekeepers' associations, especially those who read papers and make addresses, and otherwise give instruction.

Inasmuch as nearly all apiarists who produce honey to sell avail themselves of every opportunity to hear if not to engage in the instruction and proceedings of beekeepers' conventions, it would seem that nearly or quite all the entire membership of the craft would be included in the former class. However, paradoxical as it may seem, it is well known that some apiarists who are leaders in convention proceedings. and otherwise prominently engaged in apicultural educational work, are also opposed to offering educational encouragement to students desiring to qualify themselves as beekeepers. It appears that the two classes of beekeepers overlap each other, some individuals being not only on the fence but on both sides of it at the same time.

Opponents of the scheme of education and encouragement evidently fear that any considerable accession to the ranks of beekeepers will result in an overproduction of honey and consequent decline in prices to a point where beekeeping will cease to be a remunerative occupation. It should be remembered that only those having the natural adaptability for apiculture will ever be extensively engaged in it; and what would be more natural than that the education of all apiarists to a better knowledge of the business would be mutually beneficial? If all beekeepers were taught how to obtain honey as good as the bees can make, the average quality would be better, more dependable, and more desirable than that which is produced in ignorance of best methods. Beekeepers well schooled in their occupation know more of markets, and are better advertisers and salesmen than those of lesser knowledge. Unschooled, untutored, and ignorant owners of bees are the real menace; and it is this class of beekeepers who harbor infectious bee diseases, and are instrumental in spreading them, and who demoralize markets.

Not a large percentage of those educated at agricultural colleges engage in agricultural pursuits as a life occupation. The same is true, to a greater or less extent, of other lines of technical training. After acquiring his education for a certain purpose the individual finds he lacks the adaptability, or, for one reason or another, abandons his first choice of a calling and engages in some other lifework. It may be reasonably inferred that only a small percentage of those who make a scientific study of apiculture, either at college or elsewhere, will ever become honey-producers in the true commercial sense. There is really no danger of too many well-qualified beekeepers.

Phenomenal crops of honey are likely to occur at long intervals; but overproduction in the average season is not likely ever to occur. Beekeeping has been carried on in some state of advancement ever since the dawn of history; but extensive commercial apiaries seem to be one of the developments of the last century. In our own time we have noticed localities where from one to a few hives of bees could be seen near many farmhouses, change to the extent that one could travel for a day or two without seeing evidences of bees kept by farmers. Yet in some such localities, many times, more bees are kept, honey produced, and profit realized than when there were so many individuals who had only a few bees. The natural protection of forests and fences disappeared; brood diseases came in; the bees, without a real master, perished, and in their place an apiarist establishes an apiary, and, with a thorough knowledge of the business, operates it as a profitable business proposition.

Beekeepers who operated out-apiaries thirty years ago were few and far between. Scarcely more than half a dozen in the United States, and one or two in Canada, are all within my recollection, and most of these with an operator in each apiary during the swarming season. Of late years, however, while the numerous small bunches of colonies owned by farmers are gradually disappearing, we have not only many more apiarists who run out-apiaries and make apiculture an occupation, but also many more operating bees as a side line on a smaller scale in a commercial way, as may be judged by the attendance and enthusiasm at beekeepers' conventions.

During recent times the amount of honey produced annually has greatly increased, and the consumption has kept pace with the production. Honey, having a high food value and an agreeable flavor, should command a higher price, and we think prices have not risen in proportion to the comparative values of some other leading food products; yet it must be admitted that honey sells for far better prices than when there was less produced. This tends to prove that a greater number of expert apiarists, and steadily increasing production, have not, thus far, operated to the detriment of apiculture as an occupation.

When we consider that the beekeepers of many of the States and some of the provinces have long since maintained State and provincial beekeepers' associations, including many local, branch, and affiliated societies, some of them receiving governmental financial support; that several colleges have for many years been offering apicultural instruction; that several States and provinces make liberal appropriations for the maintenance of numerous bee-inspectors, a part of whose duties is to instruct in the proper care of bees; that the United States Government, some State governments, and the Ontario Government, each maintains a department from which helpful pamphlets and bulletins on apicultural subjects are issued free, and that the science of apiculture is enriched by numerous books and periodicals of high class, we can not avoid the logical conclusion that the unanimity of these several educational agencies indicates beneficial results that amply justify a continuancce of the educational scheme.

As the result of a bumper crop of wheat, corn, hay, etc., was there ever an advocacy of cessation of education and encouragement to engage in agriculture? No; but, on the contrary, the slogan is, "Back to the farm," or "Keep the boys and girls on the farm," as the means of keeping the State and nation truly prosperous. As the result of a ruinous bumper crop of fruit, has dissuasion from embarking in horticulture been advocated? No; but the States and provinces are deeply interested in the planting of new fruit areas, and "top working" the worn-out orchards to make them productive; for time has proven that bumper crops are exceptional. How much less, then, should we fear ill effects from a bumper crop of honey which time has proven may be expected at very widely separated periods, and especially as extracted honey is not perishable, but is as good several years hence as at present, if properly handled!

Governments establish departments of agriculture, including the various branches of rural husbandry, for the purpose of bettering the conditions of the rural population in every way, and of increasing the wealth of the State or nation. Governments realize that the prosperity of the people, especially those engaged in rural husbandry, is the prosperity of the Government. As an aid to this end, agricultural colleges are established and maintained. It can hardly be possible that apiculture should be an exception, and fail to respond advantageously to governmental encouragement.

Conservation of natural resources—of water for irrigation and power; of forests and re-forestration, or reclamation, etc., has engaged the attention of many eminent scientists of late years. In fact, no line of research could be of greater benefit in maintaining and increasing the wealth of a state or nation than to conserve and increase the materials naturally within its boundaries that add to the welfare and happiness of its people. Honey is a natural resource. If not gathered by bees it is lost. To conserve it, bees and beekeepers are indispensable. Perhaps much more than is gathered goes to waste. Is it not true that the state would add to its wealth in proportion to the additional amount of honey saved from waste? And whatever inures to the benefit of the state benefits the people in the same ratio.

Let us, then, continue to offer encouragement and instruction to any and all who believe they can aid in the conservation of the ungathered nectar, to the end that the myriads of flowers of the fields may not bloom and secrete their sweetness in vain.

Kenmore, N. Y.

[We believe Mr. Hershiser is correct in what he says, all through. Education along apicultural lines will do more good to eliminate foul brood than any thing else. The beekeeper who makes the real trouble and annoyance is not the one who has had apicultural training at some school, but, rather, the man who has not read up, does not take any bee-paper, and never goes to conventions. The more we can have of apicultural schools, and foul-brood inspectors who can give apicultural instruction along general lines, the better. There is plenty of unoccupied bee territory in the country for all, and the apicultural student has it pounded into him, as we happen to know, that he can not make any money keeping bees if he locates his yard within half a mile of another bee-owner. No, he is not the man to crowd territory or to overstock it. The few who stick to the business will go into territory where they can have all the nectar for the simple reason there is no one else to get it.

Those who are casting reflections on the possible value of our apicultural schools will do well to read Mr. Hershiser's article carefully. Frankly, is there any argument against apicultural schools but a narrow short-sighted selfishness that would eliminate all competition? Is it not true that they will stimulate a demand for honey? —Ed.]

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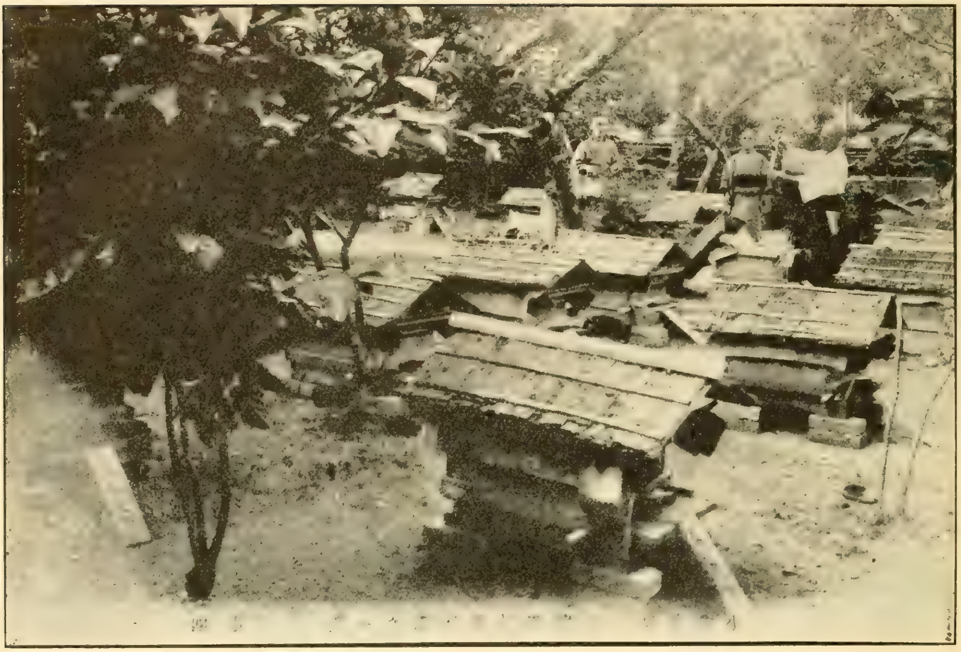
MORE DRASTIC MEASURES NEEDED FOR CURING FOUL BROOD

BY W. N. RANDOLPH

The only way to stamp foul brood out of our country effectually is to use more radical measures. Nearly all the schemes I have read about look to saving every thing—bees, hives, frames, and, worst of all, honey. I think that a man should not be permitted to sell honey from a diseased hive, nor even from a diseased yard; much less do I believe that he should be allowed to rear queens in a yard infected with foul brood and send them out all over the country. Boiling the honey to mix in the Good candy sent with the queens does no good, because to those of us who have read the text-books on the law of evidence it is a badge of fraud. It makes the honest and careful queen-breeder say in effect, "I may have foul brood in my yard," and the careless or dishonest one who knows, or ought to know, "Oh, well! I will warm up my honey a little, and let it go at that. Who is to know the difference?"

If every beekeeper in the country would resolve to use more drastic measures at once, it would help to solve the problem of foul brood. He should, on the first discovery of the disease (and all ought to be on guard now) destroy the bees after nightfall; and unless he has a steam-boiler and large tank he should destroy, by burning,



The Akahoshi apiary, Itozu, Kokura, Buzen, Japan.

all the fittings of the hive—frames, combs, and followers. As for the hives, bottom-boards, and covers, a thick coat of white lead and oil applied on every surface, inside and out, will bury beyond resurrection every foul-brood germ, and will add to the lasting quality of the hive; or burning over with the gasoline-torch will do. Painting, however, is more quickly and cheaply done.

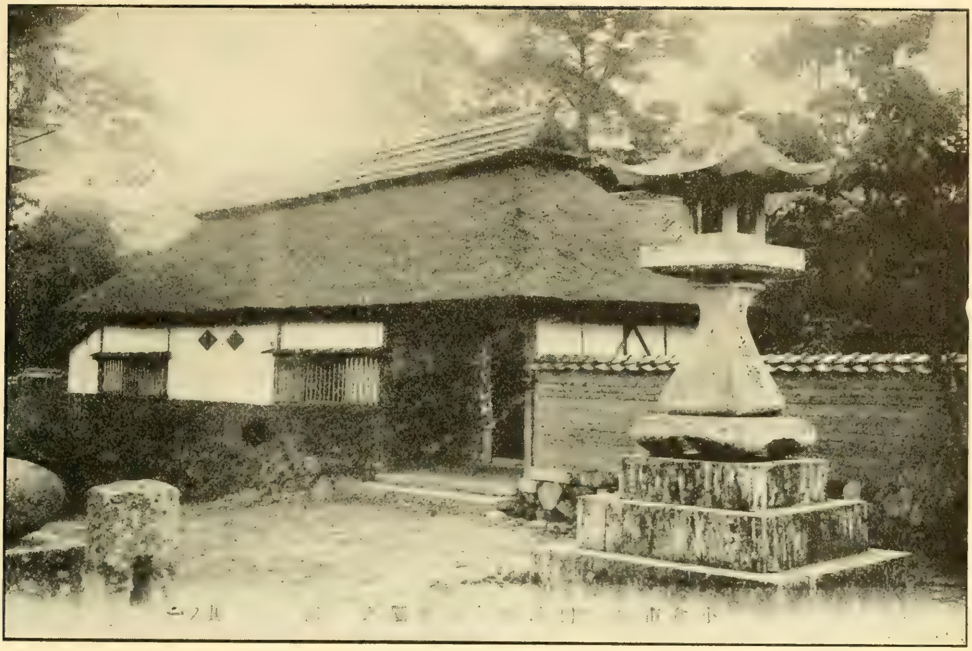
Cleaning up and starting anew a large yard at this place, I both scorched and painted the hives and outfit (of course destroying all the combs and frames) and raked off and cleaned the yard and bee-house. For two seasons there has been no further sign of the disease. I have enlisted all of the out beekeepers in our fight. The initial cost of our plan was greater, may be; but we feel well repaid because we are done with that question.

The owners of this yard—bright, enterprising young men—had built up a splendidly equipped apiary, with all the latest improvements, and had run it only three years, when they sent to a queen-breeder for a lot of queens with nuclei. These had foul brood, and, not knowing any thing about the disease, the first notice the owners had was that their yard was rotten with it. Now this thing ought to be stopped. It can be stopped if the bee journals get busy. No man ought to be permitted to send bees or queens any distance, without a certificate from some competent authority, stating that the apiary is free from foul brood. We argue, theorize, and experiment too much, and the system has spread the malady nearly all over the country, when it should be a simple matter of destroying and quarantine. By being watchful the approach may be discovered, and one may have to destroy only a hive or two. More attention should be given to rearing of queens whose progeny are more nearly immune to the disease.

Letohatchie, Ala.

[Some beekeepers may take issue with our correspondent. The man who has no foul brood, and never expects to get it, will probably argue that the other chap who has the disease should not sell his honey. But the latter would probably take the other view, on the ground that the honey itself would be harmless for human consumption. The only danger from such honey is from empty cans thrown out back of the grocery or in the back yard of the consumer, and herein lies a big danger.

Boiling honey to make Good candy does a great deal of good. We know most of the queen-breeders of the country personally, and we are satisfied that they are doing business on the golden-rule feature to the letter. However, there is a better way yet. The



The gate entrance to Akahoshi apiary, Itozu, Kokura, Buzen, Japan.

Miller smoke method of introduction will ultimately supplant the cage method everywhere. If so, this will eliminate all possible danger from the candy, providing the queen-cages are burned.

We quite agree with our correspondent that we cannot be too careful; but we think he errs in thinking that paint inside of the hives will be sufficient to disinfect it. Some paints will flake off, leaving the wood clear, just as it was before painting. Better use a torch to scorch out the inside of the hive and other appurtenances.

Neither do we recommend burning hives, bees, and all unless the disease is confined to one or two colonies. If it once gets started in an apiary, wholesale burning is too expensive, and quite unnecessary, as practically all foul-brood inspectors have agreed. —ED.]

A JAPANESE APIARY

BY K. NOMMA

Assuming that you may be interested in learning how bee culture is enlarging even as far as the Orient, I take great pleasure in sending you three Japanese post cards. They represent a small apiary situated in the suburbs of Kokura, Japan, which is owned and managed by my sister and her husband. Despite the fact that it is still in a primitive state, and established only three years ago, they are showing the most favorable signs of prosperity.

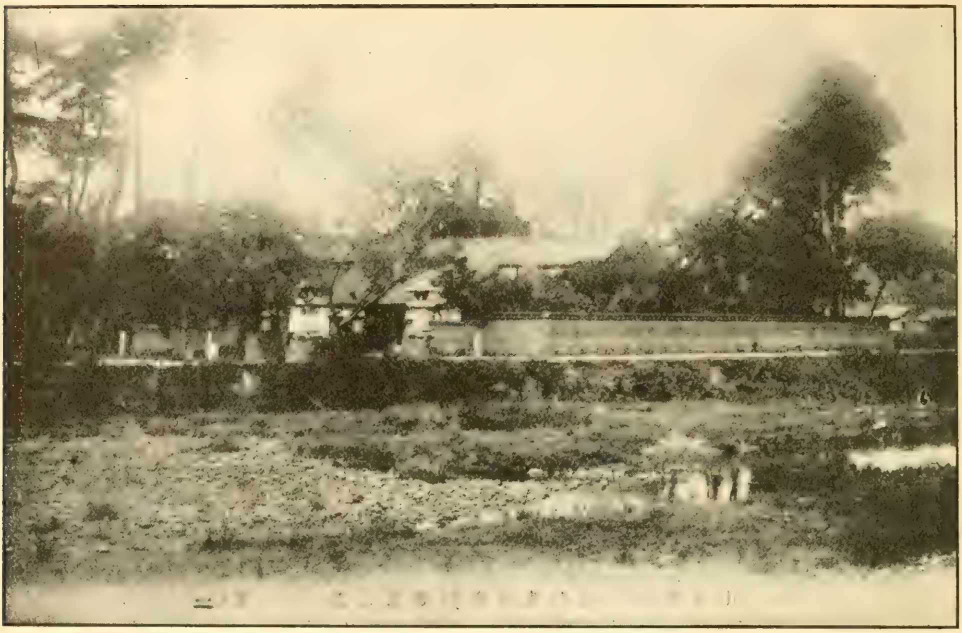
Inasmuch as each succeeding year is bringing more net profit, my sister and her husband have just completed a plan to start a new apiary in another part of the country.

Port Henry, N. Y., Dec. 17.

THE TIME REQUIRED FOR BEES TO MATURE FROM THE EGG

BY T. J. LANDRUM

I am much interested in Dr. Miller's Straw, page 125, Feb. 15, in regard to bees hatching out in less than 20 days. I am quite sure Dr. M. has made some mistake in his test. I have tested this thing time and again in recent years, and I have always found a few cells of *unhatched* brood after 21 days—that is, the bees didn't all



A distant view of the Akahoshi apiary in Japan.

hatch in 21 days, but a few would still be unhatched on the 22d day from the time the queen was taken away.

I had occasion to test this in transferring bees from box hives. When breaking up the box after 21 days, or on the 22d day. I have always found some unhatched bees (brood). Dr. Miller does not say that he looked at this frame ("XIX") once between August 5 and August 25.

Now, Mr. Editor, I know by experience that eggs don't always get a chance to hatch. When taken from home, and put into a strange colony, the bees sometimes take offense at this strange batch of eggs and destroy every one of them. I wish Dr. Miller would please tell us if he looked at this particular "XIX" frame at any time between August 5 and 25, and if he is sure the eggs in this frame ever reached the larval state. I am frank to say that I don't believe bees will hatch in 19 days 18 hours and 50 minutes from the time the egg is laid; and I believe if Dr. Miller had taken a peep at that frame any time between Aug. 8 and Aug. 25 he would have found every cell in said frame empty.

I expect to test this matter thoroughly this coming season, and will let you know what I find.

Atwood, Col.

Dr. Miller replies:

It's a good thing there are sharp eyes upon us, for there are many chances for slips in conducting any experiments with bees. I know that bees will sometimes destroy every egg in the hive, but that did not occur to me when I reported the case in that Straw, p. 125. All that I reported was that the last egg was laid just before 5:05 P.M., Aug. 5, and that the cells were empty 11:55 A. M., Aug. 25. With no more data than that, there is the possibility of destruction of the eggs, and I am thankful to friend Landrum for taking up the matter.

At the start, there was no thought of learning any thing about worker-brood. It was an experiment relating to queen-rearing. I will now give the case more in detail. The comb was taken from No. 28 at 5:15 P.M., Aug. 5 (the only comb in the hive), and put into No. 91, a strong queenless nucleus kept as a sort of storehouse.

Aug. 8, it was put into No. 69, a strong queenless colony, with the express purpose of having queen-cells built. I made no minute of whether eggs were present at this time or not, and have no recollection about it, but I think it doubtful that I should have put into a hive a comb for cell-building without noticing that the eggs had been removed. Still it is possible.

The record shows that Aug. 12, at 3 P. M., no queen-cells were yet sealed. I can hardly imagine the possibility of my examining the queen-cells at this time without noticing that the worker-cells were empty, if such had been the case, since it was a week since the eggs were laid. Still, it is not utterly impossible.

Aug. 19 I cut out the cells, and have a distinct recollection of seeing the worker-brood in compact form; and when I had cut the cells I put the comb into the upper story of No. 1 *for the express purpose of allowing the worker-brood to hatch out.*

It was put into that upper story with no thought of noting the time of hatching; but some time after Aug. 19 it occurred to me that here was a good chance to learn just how long it was from the laying of the egg to the emergence of the young worker. Aug. 25 I thought I would begin periodic examinations, so as to be able to say *between* what two hours the brood had emerged, and I supposed I was looking while it was yet certain that no young workers could have emerged. Finding every cell vacant was one of the surprises of my life.

Now, here are the things that I *know.* I know that no eggs were in that comb Aug. 5, 3:05 P. M., and that the eggs in it were laid between 3:05 P. M. and 5:05 P. M. It is practically certain that the queen would continue to lay in that comb, since it was the only comb in the hive, until its removal at 5:05 P.M. It is positively certain that all eggs were laid in it *after* 3:05 P. M. I know that sealed worker-brood in apparently good condition was present Aug. 19. I know that not a cell of brood was present at 11:55 A. M., Aug. 25.

So I know that the time from the laying of the egg till the emergence of the perfect insect could not have been longer than from 3:05 P. M., Aug. 5, to 11:55 A. M., Aug. 25 (less than 20 days), *unless* the bees destroyed the brood some time after Aug. 19. Bees when in a starving condition do tear out brood, sucking out the juices and throwing away the skins; but did you ever hear of their tearing out normal worker-brood 14 days after the laying of the egg?

Besides, this could not possibly be a case of starvation. It was in the midst of the heaviest flow I ever knew. There were four stories of extracting-combs, and not a drop of honey had been taken away from the time the flow began. Is it possible that the bees tore out a single cell of that brood after Aug. 19?

I now submit the case to the jury, asking the foreman, T. J. Landrum, to consider whether there is a reasonable doubt that the time of development in this case was within 19 days 18 hours 50 minutes, and whether there is a *possibility* that a single cell took more than 19 days 20 hours 50 minutes.

Marengo, Ill. C. C. MILLER.

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THE CONTROL OF SWARMING AT OUT-APIARIES RUN FOR EXTRACTED HONEY

BY J. L. BYER

As stated in the Feb. 15th issue, many have written me asking questions about different phases of out-apiary work. In that issue I talked of early-spring management, leaving off operations at the opening of fruit-bloom. At this time I shall tell some of the plans I use to control swarming at out-apiaries; and right here let me ask you to notice that I use the word "control" instead of prevention; for, notwithstanding the bulk of those who have written me ask for means of *prevention* of swarming, I frankly confess that I have yet to learn a satisfactory plan that will work in all kinds of seasons, with all kinds of hives, and with all kinds of bees. As many are already aware, I have bought nearly all the bees we have in our different apiaries; and while I regret it, yet the fact is we have a number of different kinds of hives in use. In one apiary there are over 100 eight-frame L hives; in another the hives are all ten-frame Jumbo, while in another there are over 200 colonies on frames similar to the Jones, only somewhat shallower.

In so far as the eight-frame Langstroth apiary is concerned, it is needless to say that this is the one that gives us the most trouble in the matter of controlling swarming; and when one has a lot of bees in a hive of that dimension, certainly drastic measures have to be taken to prevent wholesale swarming, if the colonies are all strong at the opening of the clover flow and if the yield of nectar is good and lasts any time at all. To make the matter short, we have found that the only thing to do in such cases is to take away the major part of the brood *before* the swarming fever shows, substituting full sheets of foundation in place of combs removed. If the colony is strong I recommend taking all but one comb of brood away; and if there are no signs of swarming at the time of operation, these brood-combs can be placed above the excluder in the super. If the flow is on, as it should be when doing work of this kind, I place a super of comb next to the excluder, and then another story with the brood in on top of that. With this brood so far away from the old brood-nest, queen-cells will be started in the majority of cases; but they can be cared for easily later on. I have had queens hatch in this upper story, and yet there would be no swarming; but some have reported otherwise, so it does no harm to look through these combs eight or ten days afterward.

One great objection to this plan is that, if there is any honey of inferior quality in these brood-combs, it will spoil the quality of No. 1 clover honey when the extracting is done. This is a question that every beekeeper will have to decide for himself, as locality and management of colonies previous to doing this work have a great deal to do in determining results.

The advantages of the plan are that it nearly always prevents swarming for the season; you keep all the bees in the one hive, and at the same time get a lot of new combs drawn out each year. More than any thing else, it means a crop of honey if there is any to be had, as no other plan that I have any knowledge of will give a greater surplus. This plan is old, and was first given by a southern beekeeper whose name I can not recall.

With four or five apiaries with the large Jumbo hives, many might think we should have no swarming when running for extracted honey; but unless due precautions are taken, these same hives will give us lots of trouble as past experience has shown conclusively. One of the main points to be considered in heading off the swarming desire is to give lots of room early enough in the season so that the bees will have supers to enter just as soon as they are at all crowded in the brood-nest. Our greatest trouble with swarming during the past five years has not been with the very strong colonies, but, rather, with those not strong enough to super at fruit-bloom. They are left till the opening of clover, and perhaps by that time they are a bit crowded, and. instead of going into supers when given at that time, they make preparations for swarming. When I find colonies in that condition I generally raise one or two frames of brood into the super, over a queen-excluder. Now and then we may get caught with a bit of chilled brood if the weather turns cool suddenly; but, all things considered, I would sooner take a little risk that way, and be sure that the colony is not going to get the swarming fever so early in the season, and probably knock out all chances of a crop of honey, particularly if the season is very short.

Colonies that have entered the supers during fruit-bloom rarely give any trouble at the opening of clover, so the idea should be to get all in that condition as soon as possible. Sometimes we get caught in fruit-bloom, and find extra-strong colonies preparing to swarm at the time we are clipping queens. There are many plans of dealing with such colonies at this date; and if brood has to be taken away to stop the notion of swarming, one can always at that time find many places to put it. I certainly break up the swarming fever at that time in *some* way, as one has no time to be tinkering with a few colonies at that busy season.

Last spring I moved two carloads of bees; and during my absence the clover started to yield. One apiary was unusually strong with bees for so early in the season. and, before leaving home, I had clipped the queens during fruit-bloom, and given a full-depth Jumbo super. When I came home and got to this yard I found three-fourths of the colonies with the super full of fruit-bloom and early clover honey, and about all with queen-cells started. The bees were nearly all of Carniolan blood, and I realized that my absence had put things in pretty bad shape at that place. I hastily decided on a plan; and whether it was on account of certain conditions of honey-flow, or from other causes, I knocked out about all the swarming for the time being, and in the end got a very large crop of honey. I hunted out all the queens, and caged each in a wire-cloth cage about ¾ inch in diameter and 6 inches long. The cage was placed between the brood-combs beneath the excluder, two combs being spread apart to allow the cage to go between. Each comb was taken out and examined thoroughly for cells, the bees being shaken in front of the hive to make sure that no cells were missed. Abundance of room was given above, and they were left alone for eight days, when the same process was gone over and all cells cut out again. The old queen was liberated, and, much to my surprise, the swarming fever was done for, in spite of the fact that the bees were Carniolans. I always think that bees having a caged queen never work so well as those in normal condition; but in this instance, for some reason, it seemed to make little difference. The flow was very heavy, and that may explain the matter. Of course, this plan meant a lot of work; but it was a desperate case; and if I had not been away on this moving trip, supers would have been given and the trouble avoided.

After colonies are all storing in supers. if abundance of storage room is given there should be no swarming, particularly if the bees are Italians and the hives at least as large as the ten-frame L. In my own case I prefer the ten-frame Jumbo, believing that

High trees that swarms did not alight on, and why.

better results can be obtained with less work than with a smaller hive, in so far as extracted honey is concerned. During the season, if you suspect swarming in any colonies the only way to be *sure* of the matter is to pull off the supers and examine the brood-nests. Of course, when there are two or three full-depth supers on each colony, this work is easier described than done. However, I find that many are like myself on this question; for during the height of the season, when one is jumping around about 16 hours of the day, such a thing as going through a whole apiary looking for queen-cells is out of the question. One soon gets to know from external conditions, by the progress being made in supers, and in various other ways, how to diagnose pretty well without tearing into the center of the brood-nest at every visit. We lose very few swarms each season — possibly not more than two or three at each yard; and this, if nothing else, leads me to be more than ever in favor of using large hives for out-apiary work.

Mount Joy, Ont., Can.

HIVES SO LOCATED THAT THE SWARMS ALMOST INVARIABLY SETTLE ON LOW SHRUBBERY

BY RUTH C. GIFFORD

In the spring of 1912 I moved my bees to a new location along the north side of the front yard, and directly south of the garden. Since then I have had the pleasure of seeing every swarm except one (which sailed to the limb of a fine tree) settle on the blackberry-vines in the garden. In the summer of 1912 I watched my bees closely. and found that, with the exception of the swarm above mentioned, they all settled on the berry-vines. This summer I again watched them closely. The result was the same, for they again settled on the berry-vines.

The position of the bees in relation to shade and the distance from the blackberry-vines must be the cause of their settling on the vines. Before I moved them to this location I always had to climb trees for the swarms, and several times even had to use a forty-foot extension ladder.

The lower half of one row of blackberry-vines is 66 feet from the backs of the hives. There are also some trees near by.

Unfortunately the pictures do not give a clear idea of the amount of shade, because they could not be taken until the last of October. Some of the hives stand in dense shade, but not all the time. After half-past eight there is a dense shade *in front* of them all day, and they don't get much sunlight between half-past eight and half-past ten; but after that they are shaded by the side branches of only one tree.

During the swarming season I went through the colonies carefully every ten days. I cut out queen-cells twice from colonies which had them, gave extra ventilation, and empty combs where necessary. When I found queen-cells the third time I noted it in the hive-records, closed those hives, and left them alone until they swarmed. I have found that, if colonies persist in trying to swarm, after the queen-cells have been cut out twice, and they have been given extra room, they do far better work if allowed to swarm in the natural way. However, I watched the above-mentioned colonies closely, and was rewarded by seeing a swarm come out of every one of them, and settle on the blackberry-vines. After I hived the swarms I followed the usual method of placing them on the old stands, and moving the parent colony to one side. Of course the weaker colonies were slower in building cells and attempting to swarm than the stronger ones.

I don't know whether the bees would settle on a row of small trees as readily as they do on the berry-vines or not. Their liking for the latter is at times almost uncanny.

One day this summer I saw three swarms come out about twenty minutes apart and quietly fly over and settle on the blackberry-vines. I usually find the swarms clustering around the post and clinging to all the canes. This gives them more "standing room" than the limb of a tree, and does not compel so many bees to cling to a few. I also notice they usually cluster in such a way that the vines shield them from the direct rays of the sun.

I expect to examine each colony twice next summer for queen-cells. Both times I will give empty combs where they are needed. Then I am going to keep them supplied with plenty of super room and leave them alone. The colonies that are determined to swarm will swarm anyhow, or else sulk; and I can hive a swarm from a blackberry-vine in less time as well as with more satisfactory results than I can manipulate a colony to prevent swarming.

North East, Md.

[In locating an apiary there are several considerations to be taken into account. First of all, the bees should be placed as far as possible from a line fence or a general highway. In either case, the streams of bees in going to and from the fields in the height of the season are liable to encounter teams of horses and men, and sometimes this causes trouble.

Another important consideration is shade—not too much of it, but just enough to screen the bees during the hottest part of the day. In the securing of that shade, as our correspondent points out, it is very desirable to place hives near low shrubbery to catch the swarms. If there is no such shrubbery, and tall trees are close at hand, there will be some unpleasant experiences in trying to get swarms down from high places; in fact, some of them will be entirely inaccessible, and will be lost. It is a fact that low shrubbery, if near the hives, will attract a large percentage of the swarms; and when a swarm has once alighted on a bush or limb, that bush or limb will probably, on account of the odor, attract other swarms. This we have proven out time and time again in the case of our grapevines, that catch practically 99 per cent of our swarms, the remaining one per cent going up on our tall evergreens.—Ed.]

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THAT APRIL 1ST COVER PICTURE; LUCK IN BEEKEEPING

BY F. GREINER

I want to congratulate you on the fine cuts exhibited on the title page of the April 1st number. We have at different times in the past been searching for good representations of honeybees, but have always turned away in digust from any thing that was offered us. In the line of a queen-bee we found there were seven abdominal rings in the best cut we could find. It would seem as if an artist (?) putting out work like that would hide his head. Representations of bees and drones found in our text-books are so faulty that it requires an expert to find features resembling the real thing. In view of all this it does me a lot of good to feast my eyes upon the title page of the April 1st number of Gleanings. It is true that there is not present in these pictures that symmetry found in engravings and woodcuts of former efforts; but that only increases the interest in them, and enhances their value. The only defect seems to be in the drone, the abdomen being too short, as you have pointed out in your editorial; and I hope that in subsequent trials you will succeed in eliminating this defect by selecting a specimen with a fuller abdomen.

QUEEN NOT ALWAYS TO BLAME; SOME QUESTIONS RAISED.

The idea that the queen is not always to blame when the colony is not coming up to the mark is one I have entertained for a great many years. I had at one time quite

A tight board fence that is too much of a good thing; a section of a bee-tree in the foreground.

a little controversy with our lamented friend Hutchinson on this question, and he finally made the concession that there was quite a little in this worth ferreting out. Whatever we may think and say about luck in our enterprise, nevertheless there is such a thing as luck. There is not one among us who can control all and every condition that has an influence on the net result. Even if we were smart enough to bring each colony up to that point of greatest populousness just at a certain time, then we might fail in judging when that time would be the most appropriate and advantageous, for seasons are not always the same.

Who can be held responsible for the drifting of bees from one hive to another? Who is wise enough to start his bees in a certain direction, so that they will find certain honey-secreting blossoms? Many other questions suggest themselves here. We have had certain colonies do as good as nothing one season, and the next season they did wonders. Three little dwindled-out colonies were united early in June, and outdid any thing else in the yard that season. We are a long way from having solved all the problems in beedom.

Naples, N. Y.

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A DOSE OF BEE FEVER; SOME DISCOURAGING EXPERIENCES, BUT STILL HOPEFUL

BY W. H. DREYER

I send you a photo of a section of an elm-tree containing a swarm of bees hauled to my home June 3d. It was cut on the W. S. Blakesley farm, about three miles west of here, and was some job before it was safely landed as you see it in the picture, with a Langstroth body over the top cavity, leaving the knot-hole for an entrance.

I have kept bees for about ten years, and have had enough ups and downs in the business to take the wind out of almost any one; but beekeeping has something about it that continues throwing fuel on the fire, even if it consumes some of our time and capital.

When I started beekeeping I bought my first ten colonies in box hives of the man on whose farm this bee-tree was cut.

My first loss was almost entirely from robbing. I wanted to taste some of their honey, and make a bad spill of it, getting all my bees excited, and inviting many others.

But this was only an incentive toward getting hold of bee-books and journals. After reading the many possibilities on the subject my enthusiasm grew instead of dying. Langstroth hives were bought, then came 4 x 5 sections and fences, and all the up-to-date things that go to make beekeeping a pleasure. After laying in a good supply of these things, enough to manage

50 stands for comb honey, along came those bad clover years, idle supplies, hard winters, moth-eaten combs, and the like; but to top matters off, I was completely cleaned out in the winter of 1911. There I was, beeless, but not hiveless (I had the hives right).

In the photo you will notice that $75.00 fence for protection. The winds got over it somehow all the same; and those chaff hives, about 40 in all, were of no avail—certainly trying.

The fall of 1912 I again bought 25 colonies; and after tucking them away in their winter quarters as carefully as I knew how I was again ready for a new start.

How did I spend the winter of 1912 while those bees were sleeping? Let me assure you I did some tall thinking and also some reading that often carried me into the *wee* hours of the night.

I already had requeened my bees with young queens, for that is a settled matter with me—the first step toward success, all things considered.

The next matter I settled on was single-walled hives to be set in winter cases for protection in winter. My bees never breed up fast in chaff hives, but always show up well in single-walled.

No Alexander feeder could be attached to them as to the single-walled, and many other manipulations are all out of the question with double-walled hives; and, before I forget it, let me state that the bees tucked away in winter cases with five inches of packing all around were as dry as a chip when I peeped into them April 1.

AFTER REMOVING THE CASES.

About this time in spring I equalize stores, tack over each hive a sheet of heavy building-paper, which holds every bit of heat in the hives. An Alexander feeder is placed underneath, and left alone until about May 1. Then I equalize brood, to be repeated about May 18 or 20.

Last spring my bees were in splendid condition managed on this system.

In closing allow me to say that the outlook last spring was great. Anywhere one looked the ground was white with clover; but I did not see a single bee on the blossoms. Basswood was not touched by bees so far as I know; and had it not been for sweet clover I should not have a pound of honey. This yielded about 900 lbs. on 18 colonies. I have increased my yard to 60 colonies, and hope to have an outyard next year if things are promising.

Findlay, Ohio.

[The winter when you lost so heavily was severe all over the United States. Even if your bees had been in winter cases your loss probably would have been about the same. Outdoor bees suffered everywhere, no matter where they were kept.

One lesson we learned during that eventful winter was that a tight board fence is not as good a windbreak as trees or shrubbery. The objection to a solid fence is that the wind strikes it, glances upward, then dives downward, hitting some of the hives; it starts counter-currents and whirling eddies. A picket fence is better; and better still would be two or three picket fences, one in front of the other, and about four or five yards apart; but as this would be expensive, shrubbery answers as an excellent substitute. A screen consisting of farm buildings, barns, houses, etc., if high enough so the winds will skip clear over the hives, are excellent. Behind such a screen. bees in single-walled hives will often winter nicely.—Ed.]

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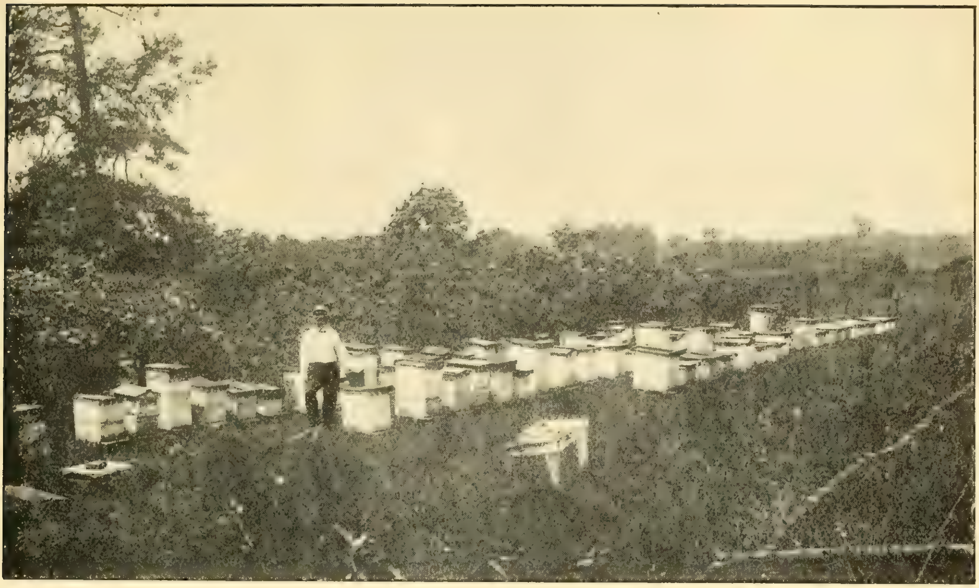
BEEKEEPING IN THE RED HILLS

BY J. J. WILDER

Seemingly, if there is any section in our great country where beekeeping would be a failure or a total impossibility it is in the great Red Hill belt; but no; it is profitable there, and is progressing; yet the amount of honey-plants there is very small and widely scattered. Such is the case in middle Georgia, where some of our most progressive beekeepers are located, such as Mr. J. R. Durden and W. L. Wilder, of Macon, Ga., and John W. Cash, Bogart, Ga.; the latter operating over 20 apiaries.

The forest in this great belt consists mostly of second-growth pines. The land, lying very rolling, was worn out and broken up in gullies many years ago, and this growth of pines came up on it; but along these larger gullies and branches and creeks are a good many scrubby poplar-trees, some sourwoods and wild plum scattered here and there; and along larger streams are some tupelo gum; but there is not much of this. On the terraces and around the patches that are in cultivation, and the old fields that are lying out, there are considerable goldenrods and asters growing which yield



Apiary of J. R. Durden, Macon, Ga., and his scheme of roofing-paper to take the place of shade-boards.

some nectar in the fall. Also, in some localities the cotton-plant yields some honey, all of which go to make up a little.

As a rule the beekeepers do not keep many colonies in an apiary or one location, and scatter them out well over the country. These beekeepers are doing just as well as those who are seemingly in far better sections or where the honey-plants seem to be abundant. The point is this: After all, there is not much difference in our country, up one side and down the other, when it comes to our industry and the possibilities of it; and the more I know of beekeeping from experience and observation, and through correspondence, the more I am convinced of this fact; and if all beekeepers could realize this there would be many more contented ones in our ranks, and there would not be so many disappointments caused by pulling up and moving here and yonder in search of better locations, and resulting in failure, etc. As a rule we are a nervous, restless set, always on the alert for the good spot which is always just ahead. This ought not to be, for we ought to settle down and be contented so far as the better section is concerned, and spread our bee business out over the country around us, and progress and be happy; for there is but very little difference and not enough to pull up and go after.

AN APIARY AND ITS OWNER.

The photo here shown presents to our vision an ideal apiary on the side of a red hill owned by Mr. J. R. Durden, of Macon, Ga., whose form also appears. This apiary is located out in the open, surrounded by waste land that is lying out, which has a good growth of goldenrod and asters on it, and also some shrubbery. It will be seen that no artificial shade is used to be in the way of the apiarist, but a number of different kinds of covers are used which can be easily seen, and I believe almost every kind sent out with hives. He says the cheapest cover sent out, or a very cheaply constructed one, is the best if it is covered with a good grade of paper roofing, and hives set in the open will not need shade-boards, etc., if put on in the manner he has put it on, which can be easily seen. It is cut a little wider and longer than the cover, and is tacked well at the ends, and one tack put on either side, so as to hold it down. Caps are used with the nails so as to keep the heads of the tacks or small nails from working or pulling through the roofing.

These bees are located on an old apiary site. Perhaps the first modern out-apiary for hundreds of miles around was located on this site. Swinson and Boardman have kept bees here for many years, and so did Mr. Judson Heard; also Mr. S. S. Alderman; and Mr. Durden has had bees on it for a number of years.

THE CAUCASIAN BEES.

As this race of bees has come into our midst to stay, and so far has proven a great blessing to our industry in nearly every section or locality these bees have been imported, and as there is no reason why they should not be carried into sections where they are not known, and at least given a fair test, it may be that they will prove a great blessing to our industry everywhere. When they first came about, there were some reports from those who had given them only a very limited trial that were not in their favor; but such reports have long since discontinued, and nearly all if not all are in their favor of late years, since they have been sufficiently tested; and I believe such will be the case in nearly every place they are tried. So if I were the only beekeeper who has given them a thorough test and found in them a great superiority over any of the other races of bees, I would be the last man to pen another line in their favor; but hundreds of beekeepers from almost all parts of the country report the same thing after testing them. Now, I feel safe in recommending them to those who are not satisfied, or who do not obtain good results from the bees they have at present.

I obtained three of the first Caucasian queens the government imported; and the second year I had them I had seen enough in their favor to head all the colonies in my home or main yard with queens reared from them; and from time to time I have established from this yard many other yards, and have done no little requeening with this stock, with the result that it has revolutionized beekeeping with me; and adopting this stock has enabled me not only to operate several hundred colonies, but even several thousand colonies. So I can not say too much in their favor from my own experience as well as that of others; and if I am a success as a beekeeper it is due to our government for sending me the foundation stock of this variety of bees; for I had already reached the climax—yes, and went a little beyond if possible—with the Italian and other varieties of bees. I will not assume the responsibility of saying that these bees are just the thing for every beekeeper in all parts of the United States; but while reports from some beekeepers in nearly every section have been made, all have been in their favor.

If it were left to the writer to be the judge he would quickly and frankly say that the Caucasian bees rank higher than any others that have ever been imported into our borders for commercial use.

It is said that almost any kind of hive will suit almost any kind of beekeeper; and the same might be said in reference to bees. But the highly ambitious beekeeper who wants to make the most of his bee business, and a mark in our ranks, and number his colonies by the thousands, could not even think of adopting any other stock, because they have greater merits or qualities.

THEIR GOOD OR BAD QUALITIES.

Their good or bad qualities, as the writer has found after some years of experience with them from two colonies to two thousand colonies, are these: First, there has been but one very bad quality brought out against this bee, and that was that it propolizes the interior parts of the hive body; but this was not quite so bad as the wads or balls of brownish glue found about in the hive which almost put an end to manipulating the interior parts of the hive. Well, this, of course, was a very serious objection, and hence came the cry against them.

Another slight fault found with them was that they build too much burr and brace comb. But what about these bad qualities in this bee to-day? They have been almost eliminated, and most of it done naturally, too—that is, they have nearly cleared themselves of this objection, or to such an extent that it is no longer an objection. I have done but little if any toward breeding this bad quality out of them; but I learned that if I would give them plenty of ventilation about the bottom of the hive, and plenty of storing room, that colonies most inclined would make only a small deposit of this; and then, too, about the entrance, where it could be removed easily, or would not interfere with frame manipulation if left.

But briefly, what about the good qualities of this bee? Well, I would say this: They embrace every thing that could be expected of any bee—yes, and far more, which are: They are gentler, and far less furious at all times; gather more honey, and give it a much better body, especially if it is inclined to have a thin body, which is common among different kinds of honeys. They will also give it a much better finish in capping. This feature alone is a redeeming one in favor of this bee, for I get 2 cts. per lb. more for the honey they finish in one-pound sections. The capping is beautifully white, and in most cases has a very fine silk-like finish, and in many cases white veins running through the cappings from one side of the sections to the other, running through it like veins in a human body. Then they are less inclined to swarm; build up earlier in spring; queens more prolific throughout the season; requeen themselves more often; in other words. they do not tolerate their old queens as do other races

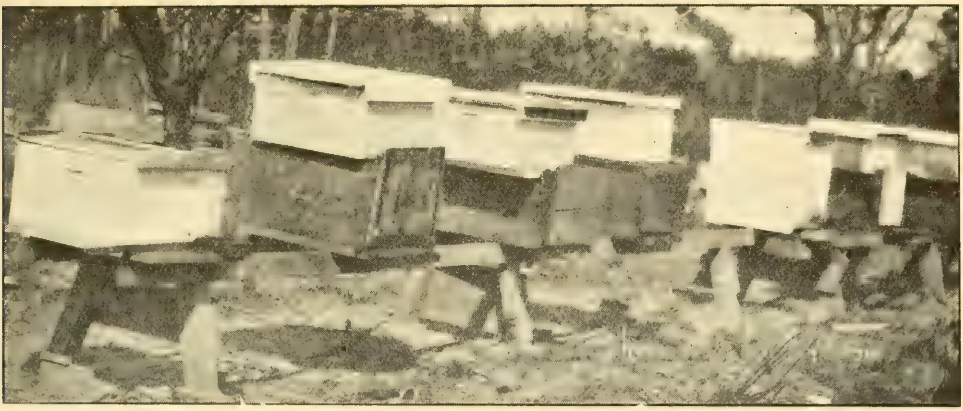


Fig. 1—A. B. Marchant's scheme of transferring so that the bees do practically all the work.

of bees, and it is more hardy—that is, it will live longer under the greatest strain of its life.

Lastly and naturally, an apiarist can care for more bees with less expense, so far as labor is concerned, and at a much greater profit if he has this bee.

Cordele, Ga.

[The reports that have come in to our office regarding the Caucasian bees do not agree with those that have come to Mr. Wilder—that is to say, those who have tried them to any extent in the North do not seem to be favorably impressed with them. We tested them quite thoroughly, as we thought, at Medina, and were compelled to get rid of them. They are the worst bees we ever had for out-apiary work, as they swarm in season and out of season. In fact, they are much like the Carniolans in this respect, with the further disadvantage that they are bad propolizers, and excessive builders of brace combs. We were very glad to get them out of our yard.

But there is one thing in favor of the Caucasians, and it is also true of Carniolans—they will breed up early, and they will breed when Italians cannot be coaxed. This very quality might make them desirable for Mr. Wilder in the spring.

But we should like to know how he handles them in the swarming season. If our experience means any thing there would have to be a man at every yard, and that would be expensive. We operate with an automobile which carries our crew with foreman from yard to yard. If an occasional swarm comes out, and is discovered by the farmer or his family, a telephone call will bring one of the boys on a motor cycle, to take care of them. But we have comparatively few swarms, because we use Italians. With our system of management, which, as we figure it, is more economical than to have a man at each yard all the time, we cannot tolerate Caucasians nor Carniolans; and as a general thing we have no difficulty in getting Italians to breed as fast as they ought. A colony that runs to excess in brood-rearing is likely to have chilled brood in the spring.—Ed.]

A NEW SCHEME FOR TRANSFERRING FROM BOX HIVES THAT PRACTICALLY ELIMINATES ALL THE LABOR CONNECTED WITH IT

Charlie Repp, of the Famous Repp Brothers, Fruit-growers of New Jersey

BY E. R. ROOT

When I visited the boys at our Appalachicola apiary in March, our foreman, Mr. Ernest Marchant, in the course of our conversation relating to the various methods for making increase, remarked:

"Say, Mr. Root, you ought to see father's method of transferring from box hives into modern ten-frame dovetailed hives. It is the slickest scheme I ever saw. You must be sure to see dad and let him explain it; and do not forget to take along the camera."

The next day we met the senior Mr. Marchant, and with a launch proceeded up to his Sumatra apiary, where the plan is in successful operation. Fig. 1 shows a row of hives in process of treatment; and Fig. 2 is a still closer view of the same thing.

You may say at first glance, that this

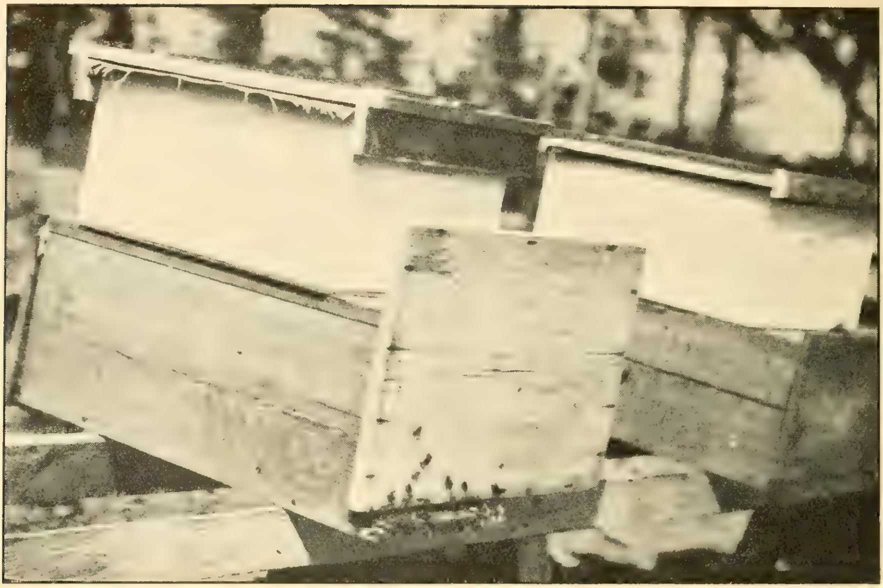


Fig. 2.—Marchant's scheme of transferring. An empty super of drawn comb is placed over an auger-hole in the box hive; after bees and queen go above, a piece of perforated zinc is placed over the hole.

is precisely the same thing that J. J. Wilder described in the *Beekeepers' Review* for March. It certainly looks like it; but, as a matter of fact, it is very different.

While I was adjusting my camera Mr. Marchant went on to explain that he had bought up a lot of old box hives, as he found himself short of bees, paying from one to two dollars for the same. To transfer in the old-fashioned way, and fit the combs into frames, was out of the question. Even the Heddon short method described in our A B C and X Y Z of Bee Culture involved too much work.

" When I get ready to transfer," said Mr. Marchant, " I prepare as many eight-frame supers with empty combs as I have bought hives to transfer. I now approach one of these, lay it on its side, and blow a little smoke in at the bottom. I determine, as exactly as I can, how far down the brood comes. I saw off the hive, combs and all, as close to the brood as I can, and tack a board up against the sawn-off end. I next bore an inch auger-hole in the side or what is now the top, and then place over it one of my regular supers of combs and the job is done for the time being.

" But," said I, " how are you going to force the bees, and, more important than all, the queen, into the empty super? "

" They will go up all right when black tupelo is coming on, and providing I contract the hive capacity of the old gum by sawing it off as I explained."

" Yes," I said doubtfully; " and if the bees go up how are you going to catch the queen? "

" That is easy," said Mr. Marchant. " With a contracted brood-nest and a lack of room, and honey coming in, the bees are bound to go above through that hole, for we know that when honey is coming in bees will occupy empty combs at once."

" But the queen? " I interposed.

" Oh! she will follow the bees."

" But suppose she does," I asked; " will she not go back again into the old combs? "

" No, sir. A few days after placing the dovetailed hive on the old box I make an examination. As soon as I find eggs and brood in the upper part I put a piece of zinc over the hole. In 21 days all the good brood below will be hatched. I now remove the old hive and add another super to the transferred colony, and place the old gum near the transferred hive, and let the bees rob it out. When that is done I melt up the old combs and convert the box hive into kindling-wood."

In proof that such a scheme was working well, Mr. Marchant showed super after super where queens and bees had gone up into the upper hive.

" But," I said, " Mr. Marchant, will this work this way every time? "

" Yes, if the empty comb below the brood in the box hive is cut off, and providing, also, that honey is coming in from some minor sources."

The fact that box hives with black bees can be bought in many places in the South for one to two dollars a gum, makes this method particularly attractive and simple, where one has a preliminary source of honey coming in so as to force the bees above.

The Wilder method of transferring appears to ge a good deal like the one described by Mr. E. D. Townsend some years ago in GLEANINGS.

CHARLEY REPP, THE APPLE-GROWER, AS A TEMPERANCE MAN; BEES AS POLLINATORS.

In our issue for April 1, page 243, I spoke of my interview with the genial Charley Repp, of the famous Repp Brothers, the apple-growers of New Jersey; and in our issue for Aug. 15, 1913, I gave quite a complete description of the fruit-growing operations of these three brothers. It will be remembered that Albert Repp is the grower of the apples and other fruit. Charles Repp is the one who operates the 10,000-barrel storage-plant and ice-making plant; and Joseph Repp is the merchant in Philadelphia who sells their product when the market is ready. The Repp Brothers have given some very strong testimony showing that they must have bees in their orchards; and they *have* some orchards, for they have 450 acres in Gloucester Co., N. J., that are devoted to the raising of fruit. Some of the strongest testimony that has ever been published showing the value of bees as pollinators has come from Albert Repp, page 562, Aug. 15, 1913; also the *Country Gentleman* for May 24, 1913.

It seems that the Repp Brothers have extended their field of operations in that they now have a cucumber farm at Delray, on the southeast coast of Florida, and a great success it is. When the boys bought land down in that part of the country they were told that it would not be possible to grow cucumbers there, on account of the insect pests; but Albert Repp remarked, "Why not kill them off with insecticides in the form of sprays?" and they did.

On the Repp Brothers' Florida farm there are acres of cucumbers that are being grown successfully, and the probabilities now are that, as they have blazed the way in showing what can be done, winter cucumbers will be grown in Florida at a price considerably below what the northern greenhouse growers can produce them The Repp Brothers are already doing it. I merely mention the incident here to show that the boys, like their father before them, are in the habit of doing what other people said "couldn't be done." That's what makes genius; that's what makes success.

Mr. Selser wrote me while I was in Bradentown, saying

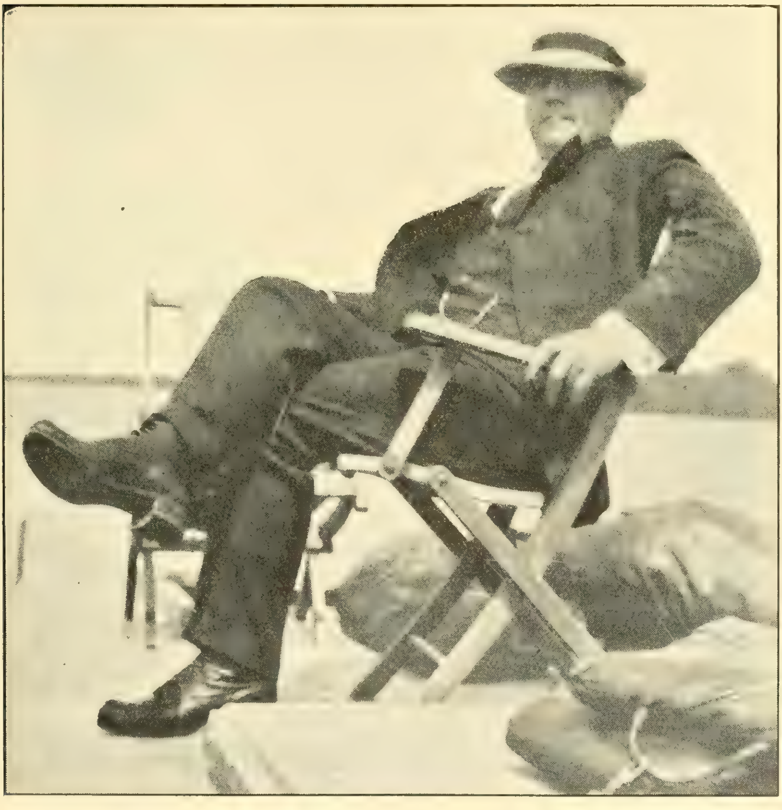


Fig. 3.—Charlie Repp, of the Repp Brothers, the famous apple-growers of New Jersey. "Now fire away with your questions."

that whenever I went over to the east coast on any of my travels I should be sure to see Charley Repp, who was looking after their cucumber farm at Delray. He would arrange, if possible, to have Mr. Repp accompany us on our trip south, as he felt sure I would be glad to get some notes on the value of bees as pollinators. To make a long story short, our cruiser and party arrived in due time at Delray, and Charley Repp was at the dock, and soon piloted us to his cucumber farm of which I have already spoken.

"Bees? Oh, yes!" he said; "couldn't raise cucumbers without bees. There is a colony or two, over there, and there are a lot more of them about half a mile away."

"You are positive that bees are necessary for cucumbers?"

"Yes, I am sure of it," he replied.

As we walked down to the dock I said, "Mr. Repp, I am greatly interested, as you may surmise, in this matter of bees as pollinators, and ever since I read that write-up of you boys in the May 24th issue of the *Country Gentleman,* where you gave such testimony for the bees, I have been wanting to see one of you and ask questions."

On arrival at the boat we took some camp-chairs and sat on the upper deck, and then began our interview. After Charlie had seated himself in the camp-chair that shows in Fig. 3 he said, "Now fire away with your questions."

"Say, Charley" (for I had become well enough acquainted with him by this time to address him thus familiarly), "how many bees or colonies does it take to pollinate an acre of apple-trees?"

"Oh! ask me something easy," he replied, with a merry twinkle. "I can't answer that, as so much depends on the size of the trees and the kind of season."

"Well, *about* how many?" I asked.

"I don't know; but I will tell you this much: We can't have too many. The more bees we can have, the better."

"Why?" I asked.

"Because," he answered, "in some seasons the flights of bees are limited. Bees can't pollinate during wet or bad weather; and during the few good hours of flying weather, of course we need a large number of bees."

"But I have heard it said that there are certain varieties of apples that are self-pollinating—for instance, the Baldwin, and that the bees are not needed on them."

"Possibly," he replied. "We can grow self-pollinating apples; but the varieties are very limited. Bees are necessary to increase the varieties. In order to make apple-growing a success, we must grow the variety that is best adapted to the climate and soil. Those we grow require the agency of the bees. We can't grow the Baldwins, but we can grow the Winesap, and the latter needs bees."

"How about the value of bees on peaches and cherries?"

"I do not think they are quite as necessary on these blossoms; but apples must have them."

"Well, now, Charley, I have felt that the spraying of trees is a necessity, and that pruning is also a necessity, but that bees are only secondarily important."

"But why are not bees a necessity?" he replied. "We simply can't grow apples without bees—that is, some varieties at least. We can't dispense with spraying or pruning, nor can we with bees."

HOW THE LIQUOR PEOPLE WERE GOING TO "GET" THE REPP BROTHERS.

"To change the subject, Selser tells me that you boys are strong temperance men; that you have been active in the fight against saloons—so much so that you have incurred the wrath of the liquor people, and that they have threatened to get you. Is that so?"

"Yes," he said, "we have no use for the liquor business, and fight it every chance we get."

"I understand that one of the liquor agents threatened to put you boys out of business."

"Yes, but they did not scare us very much."

"What were they going to do?"

"The liquor agent said that they were going to put out mammoth orchards next to us and undersell us. 'We will get you,' they said, 'for you can't interfere with our business without getting into trouble.'"

"What did you say?"

"I told them I would rather they would raise apples than to raise hell. Then they told me they were going to put up a mammoth ice-plant and make ice cheaper than we could. I told them I would rather see them make ice than to make bums. Then they said they were going to put up a large cold-storage plant and store apples, and then undersell us. I told them I would rather see them fill a cold-storage plant than a jail."

"Did they try to 'get' you in any other way?"

"Yes, they went after our bankers and tried to get them to pinch us. But our bankers were our friends."

"Did they start their apple-orchards and cold-storage plant?"

"Naw!"

A city beekeeper standing beside his banner hive.

SOME BEEMEN I HAVE KNOWN; A SUCCESSFUL "BACK LOTTER" RIGHT IN THE CITY

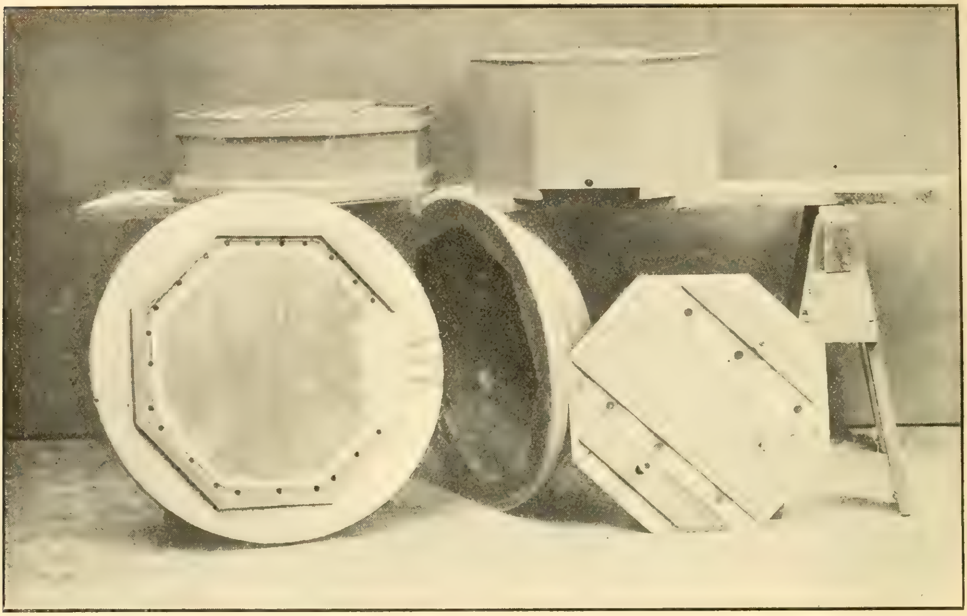
BY WESLEY FOSTER

I submit here two pictures that show Mr. J. F. Lyman, of Boulder, Colo., among his bees. The source of his honey-flow is entirely from mountain flowers and sweet clover. The mountain flowers furnish nectar early in May and June, and the sweet clover in July and August. Mr. Lyman is a city beekeeper. He lives right in the city of Boulder, and his little apiary of a dozen colonies is about half a mile from the foothills. The sweet-clover bloom upon which his bees work grows along the roadsides and vacant property in the city of Boulder. Mr. Lyman sold over one hundred dollars' worth of honey from his nine colonies (spring count), the past season. He is the baggage-transfer man for the Boulderado Hotel, and sells the hotel a large part if not all of his surplus crop.

His crops have been remarkable to me because of the lack of suitable bee-range. Last season nearly 500 colonies of bees were located within the city limits of Boulder. In some seasons it seems a location can hardly be overstocked, while other years it is very easy.

Mr. Lyman is shown beside his banner hive. He is using this photo postcard to send to his friends and honey customers. It should stimulate consumption, for it is an example of stimulated honey production.

Some comb honey produced by a back lotter right in a city where there were 500 colonies in the city limits.



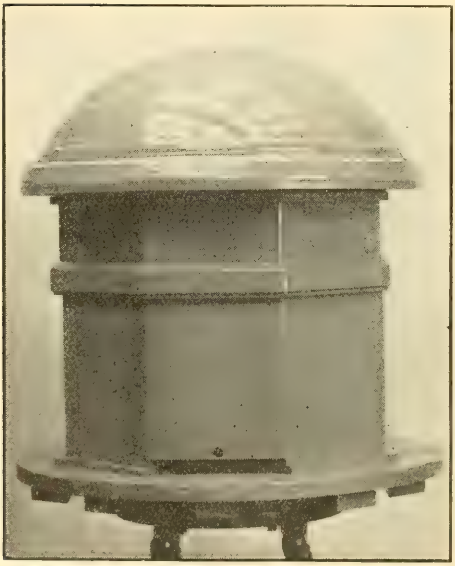
Hake's octagonal hive dissected. The picture combines the complete outfit, consisting of brood-chamber, super, super-cover, bottom-board, and hive-cover, painted with deck paint, which gets hard and water-proof like hard enamel.

Of course Mr. Lyman is an enthusiast, but does not contemplate becoming a specialist right away, at least. He knows from experience that all seasons are not as favorable as the last.

Boulder, Col.

AN ORNAMENTAL OCTAGON HIVE FOR LAWN PURPOSES

BY CHARLES Y. HAKE



Hake's ornamental octagon hive for lawn display.

I present here several pictures of a home-made hive of octagon shape. This hive is used for forming nuclei for increase in the early part of the season. It is always in use. I have a strong colony wintering in it. The small open corners are used for feeding. It contains a super with five regular shallow extracting-frames, and six small frames one-half the size shown in photo.

The brood-chamber takes regular half-sized Hoffman frames. Full capacity would would be nine regular frames. In this way the nuclei never go to waste, and are always returned to the hive when not in use.

This peculiar-shaped hive makes an attractive ornament for my front yard. I have several real old-style earthen hives, one shaped somewhat like the old straw eke, and another circular one in two parts, a brood-chamber and a super, bell-shaped, with a large handle that lifts off.

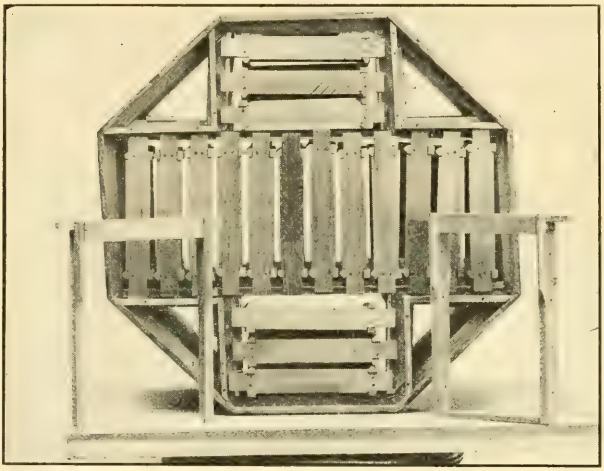
York, Pa.

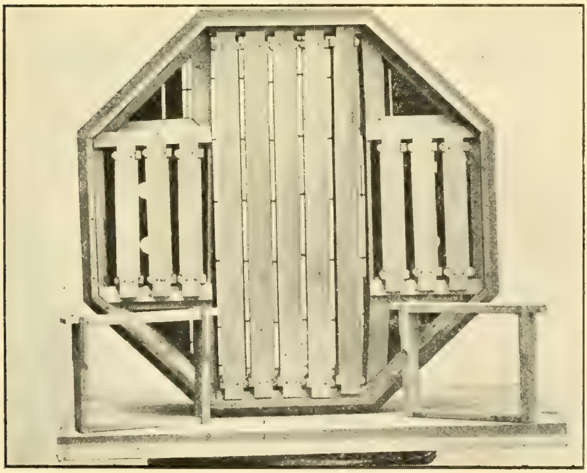
THE HONEY-EXTRACTOR AS A NECESSITY TO THE COMB-HONEY PRODUCER

Some Timely Hints on Spreading Brood

BY THE OUTLAW

One of my first impressions in comb-honey production was that the extractor was unnecessary; that extractors were only for those who make a business of producing extracted honey. That idea is something, however, I have since disproved. In every locality with which I am familiar, and for the benefit of the skeptic, I will state that I am somewhat familiar with comb-honey production from the Atlantic to the Pacific, and from the northern to the southern boundaries of the United States; that I consider that all the comb-honey producers should own and make use of an extractor; for there are times in almost every season in every locality when an extractor is necessary to get the best results from an apiary. The matter that brought this subject to mind was when I overhauled my colonies of bees on the roof. They had received no attention since about November 1, at which time I removed the super, thereby reducing them one story. On examining them about March 1st I discovered that they had filled every cell possible with honey, and that the brood space was confined to four frames, each of which was about half brood. I immediately added the super, took out all the frames of honey, and placed empty frames in the brood-nest, thereby giving the queen an opportunity to lay, of which opportunity she immediately took advantage. The empty combs that were placed above, and part of the frames placed below, were immediately filled with honey, so again I found myself in need of empty combs. As these I did not have, and having an extractor, I proceeded to place empty frames in the brood-nest, one at a time, waiting until each frame had been filled with comb before giving another one. Following this procedure, in three weeks' time my colony, in place of four frames of brood, had seven — something that would have been impossible had the brood-nest been left in the condition in which I found it on March 1. Two of these combs of new brood were new comb built in the empty frames.


The scheme of frames in the Hake octagon hive.


Inside of the super.

The clogging of the brood-nest with honey is something which very seldom occurs in the spring in the central States; but it does occur later in the season, especially with colonies that have cast a swarm. This applies with double force to those colonies that are allowed to cast an after-swarm. Perhaps here I can best illustrate my point by telling some actual occurrences. The first was in an out-apiary in one of the central States. The apiary had an attack of the swarming fever, with the result that every strong colony had cast at least one swarm. Along the latter end of July I went over the brood-nests of some 40 colonies that had swarmed. From those 40 brood-nests, if I remember correctly, I removed 30 gallons of honey. This was the salvation of those colonies. Had the brood-nests been left in the condition in which I found them, the queens would never have been able to build up the colonies in shape to go into winter quarters properly. It is just as essential to proper wintering that there be plenty of young bees as that there be plenty of stores. Another instance occurred in one of the Rocky Mountain States. There a yard which contained some 40 colonies, spring count, was run only for increase, the idea being only to make as many colonies as possible. This yard was extracted twice during the summer, the extracting being done out of doors. The two extractings totaled 150 gallons. This, of course, was not all taken immediately from the brood-nests, for the reason that, as there was a sufficiency of empty combs, whenever a frame became filled with honey it was removed and placed in a super and an empty frame placed down in the brood-nest. Here honey was only incidental. The idea never was to produce honey, only increase; but in spite of that fact the bees stored 150 gallons of surplus. In connection with this there is another thing that it ofttimes pays to practice in a small way, which, while it is known to most of the old-timers, may be new to some of the younger generation. That is, to take the frame of honey and uncap it, or at least mash the cappings with the hive-tool, and place this uncapped frame in the center of the brood-nest, with the result that the bees will, under the right conditions, take a good proportion of this uncapped honey and store it above, and then utilize the comb for brood.

Another matter that goes with extracting brood-nests is that of spreading brood. Whenever conditions are such that the bees store the honey in the brood-nest, when the apiarist desires brood the spreading of brood should be practiced. In spreading brood, the great danger is in spreading it too much. A colony of bees is something like a sitting hen, as each can cover only a certain amount of brood, and with either it is very easy to give them too much to cover. In spreading brood there is one hard-and-fast rule—that is, never separate one frame of brood off by itself. Always work them in pairs. For example, if there are but four frames of brood in a brood-nest, separate them in pairs, and place the empty comb between the pairs. If there are six frames and plenty of bees, the six can be separated into three pairs, and two empty combs be placed between them. This matter of extracting the brood-nest and spreading brood is a matter which beekeepers in each locality will have to work out for themselves. There is no hard-and-fast rule that will apply everywhere. It is necessary to understand thoroughly the season as well as the bees, and to consider what the future contains, and then act accordingly.

San Diego, Cal.

[If a comb-honey producer does not have a surplus of empty combs that he can draw on when the queen becomes honey-bound, he surely ought to have an extractor; and there are some seasons that are too poor to produce comb honey. The same may be said of some colonies in good seasons. A comparatively light colony will produce considerable extracted honey when it cannot be made to produce comb. In the same way a good colony in a poor season will produce some extracted but no comb. A comb-honey producer, however, does not need a large four, six, or eight frame extractor. A small two-frame machine will supply his needs.

In the matter of spreading brood, there is a good deal of science to it. An experienced man can very often build up his colonies just as our correspondent points out, and thus be better able to catch a flow of honey later on. Many and many a beginner, and some expert beekeepers who are short of help will allow their queens to become " honey-bound " at just that season of the year when they can ill afford it. An early fruit-bloom in some localities will sometimes absolutely shut out a queen. If three-fourths of the egg-laying room is occupied with honey there will be little likelihood that there will be a sufficient force of bees to gather a clover crop later on.

The " Outlaw," so called, is an old correspondent who has written for GLEANINGS for years, and from different parts of the country. While he is now a practicing attorney we are glad to note he has not lost his interest in bees. The very qualities that made him a student of law will also make him a better beekeeper. His article above may, therefore, be read with unusual care because it relates to some very important considerations for this time of the year.—ED.]

Heads of Grain from Different Fields

Painting Entrances with Creaso Dip to Stop Robbing

About two years ago I was called by Mr. R. C. King, of Wharton, Texas, to see what was the matter with his bees, for they were dying by the thousands. We opened only two or three hives, when it was plain that they were starving. Some colonies were so nearly gone that the bees had eaten all the unsealed brood. I told him what was the matter, and we got busy with sugar and water. It was about April 15 or 20, with warm days and cool nights. When the bees began on the feed they commenced to try to get into the hives we had opened. I asked Mr. K. if he had any carbolic acid. He said no, but that he had some stuff that smelled a good deal like it, so when he got it, it was creaso dip. We mixed it with water, about half and half, and rubbed it on the hive where the bees were trying to get in. They stopped just as if one had caught them and carried them off. In five minutes they were as quiet as could be.

This fall we had a very good honey-flow that came in October; and when we were taking it off the weather was cool and cloudy, and, of course, we had hardly started before the robbers wanted to help. I had a little bottle of creaso dip; and when I had finished taking the honey out and had put the top on the hive I put a little of the dip around the hive under the edge of the top, and worked right along with as good results as if it had been fine warm weather with a good honey-flow on.

With the smoke plan of introducing queens, and ¾-inch blocks to prevent swarming, and creaso dip to stop robbing, what else do we need except a good honey-flow for ten months in the year to make a success of the bee business?

Lane City, Tex., Nov. 10. W. H. Moses

Swarming without Increase

Last season, in hiving swarms we did not wish increase, so we put them into a hive as usual. That same afternoon we removed the parent hive a few feet away, and put the swarm on the old stand. Next morning we took brood, bees, and all from the parent colony, and gave them to the swarm, watching the frames to see that we did not get the queen in: and then we shook the bees remaining in the hive on the ground in front of the new colony. We could not take the time to find the old queen in the swarm. This plan worked finely last season. Colonies so treated worked with more vim and energy, and made more honey, than other colonies, and we could not see that they started queen-cells any sooner than if not given brood and bees from the old colony. Since the old queen is left in the colony, what trouble, if any, shall we get into by keeping up this practice? We can not follow directions given in the A B C and X Y Z of Bee Culture, because we use the Langstroth improved Simplicity hive. On account of the rim we can not use one over the other.

We wish to use some shallow extracting-supers, keeping them on long enough to induce the bees to work above them, and put on section supers. Can we use them without queen-excluders?

Whiting, Kan., March 23. Josie Gray

[There is an old saying that "nothing succeeds like success;" and if the method of swarm control which you are using works well with you, then, most undoubtedly, that is the method to use. However, it is not new, but has been tried out by many beekeepers, and abandoned because it too often fails to give the desired results. In many cases the bees, after having been hived back on the old combs, would swarm out the very next day, or would loaf until another batch of queen-cells was well under way, and then swarm again. In beekeeping it often happens that a plan which will work well one season will be a failure the next, and we would advise you not to count too much on this method until you have tried it out at least another season. If you follow up this practice it would be well to see that your old queens are replaced with young ones at least every two or three years, or you will finally have a lot of weak colonies on your hands. This will be due, of course, to the natural failing of the old queens.

Your plan of using shallow extracting-supers to induce the bees to work above before putting on the section supers is a good one. However, unless you use a queen-excluder you run the risk of your queen laying eggs in them. In that case the brood can be used to strengthen weak colonies.—Ed.]

Death of Aaron Snyder, a Noted Beekeeper of New York State

Mr. Aaron Snyder, of Kingston, died March 3, 1914, in his 71st year. He was born in Albany County, N. Y., in 1843, and was a beekeeper from the time he was 16 years old. In 1889 he moved to Kingston. Here he ran from four to five apiaries, one being at his home bee-farm just in the edge of the city, and the others within driving distance, from two to six miles away.

Mr. Snyder leaves a wife and four children, all of whom are married, and live close to the old home. They have helped him in his business to such an extent that he has his letter-heads, and all of his honey-labels headed with his own photo, followed with the words, "The Snyder Bee and Honey Co."

Mr. Snyder was a practical apiarist. He had an inventive mind and made many changes, and used many kinds of hives. He produced mostly comb honey until the last few years, when he produced extracted honey.

His choice of hive was a nine or ten frame, 18 inches long and 12 inches deep, with extracting supers half the depth of the hive, holding Hoffman frames. He believed in selling his own honey, and could not produce all of the honey that he could sell, as he kept agents on the road as salesmen. He bought honey by the barrel, in addition to what he produced himself to supply his customers. He put up his honey in one-pound bottles, and some in five pound pails, being careful to use good honey.

His agents would take back any honey that candied, and exchange it for liquid honey. This candied honey was then heated in his shop, and new labels put on the packages for the market.

In politics Mr. Snyder was a Prohibitionist. He was a hearty good fellow to meet at his home or elsewhere. He will be missed at our bee conventions, and by all who knew him. He had a jovial way. When in good health he used to stretch himself up by my side, then give me a couple of slaps with his hand, and say, "We are about the same height, and weigh in the same notch (212 lbs.), twin brothers." I should like to say more about his kind and happy family, but space forbids.

A Friend

Increasing by the Nucleus Plan

After reading the editorial on page 83, Feb. 1, I thought I would give my experience in making increase without materially weakening the old colony.

In the spring of 1912 I had 60 colonies of bees, and I wanted to increase to 100; but I did not want to let them swarm, nor divide them, as I wanted to secure a large crop of honey. So I decided to increase by the nucleus plan. I set to work to rear my own queens, so I could give the nuclei laying queens as soon as I started them. I started almost all of the nuclei on the first of July with one big frame of sealed brood or two small frames, with all adhering bees, and gave each one a laying queen and drawn comb. Nearly all of them built up to good strong colonies by August 10, about the time the fall honey-flow commences, and they gave me an average of 30 pounds each of surplus honey, besides their winter stores.

Brook Park, Minn., Feb. 9. HARRY BELL

Increase the Consumption, Stimulate the Market, and Stiffen the Market of Honey

Are you reading the series of articles running in the *Saturday Evening Post*, by Forrest Crissey? They are a revelation to those who are not familiar with the "Association way" of doing things. He has made a thorough study of associations, and in these articles he compares the old, narrow, "cut-throat" ways with the association methods now successfully in use in many vocations. He tells us how competitors who a few years ago were fighting one another, each trying to build up his own business by tearing down that of the other fellow, stealing trade secrets, processes, customers, and even skilled workmen, are now sitting side by side at the association meetings, "swapping" information, improved methods, and co-operating in every way for the uplift of the vocation, using the energy formerly required in tearing each other down to boost the trade generally. In this way each is benefited financially, morally, and (I trust) spiritually by the association of effort.

Almost all vocations are now taking up publicity for their products in the association way. Some of of them pay their professional "boosters" a princely salary. I can name half a hundred associations that are advertising their products, not as individuals, but for all as an association. These progressive associations are forging ahead, while the few that cling to the old traditions and stay in the narrow rut are not getting on.

When we compare the real food value of honey, and the prices we are getting for it, with some of the well-advertised products, we find that they are getting more money for less value, and selling more goods; and about in the ratio of the publicity given them, these other goods are in advance of our product.

We have only ourselves to blame for this condition. We have increased our production, depending on the good qualities of our product to sell itself. But business is not done that way now. It used to be; and when it was, honey was at the head of the list of all the good things. Nowadays we all eat just what shrewd publicity men can convince us is necessary, sometimes against our better judgment. At the same time we are offering a delicious, wholesome product with a high food value, admirably fitted to take the place of meat on the laborer's table, or to grace the most exclusive banquet as the most dainty of delicacies. In spite of its manifold virtues, we find thousands of tables where it does not appear at all, and I have known grown-up persons who never tasted it in their lives.

There is nothing surer than the fact that honey will respond to proper publicity and pushing. We have a case in point up around Chicago, where some enterprising young men are "boosting" extracted honey, and a medium amber at that, and they sell tons and tons of it at a good round price, and do it year in and year out. Honey advertising, local or general, will give results as very few other products can, as it has value, real value as a delicacy, and as a health and strength giving staple.

We are likely to have a bumper crop this year, as the conditions are favorable everywhere, and we have the remnants of the last year's crop to clean up. But with proper united effort we can handle this big crop and stiffen the prices also. We have 20,000 beekeepers brimful of enthusiasm, ready to attempt any thing that promises to advance the interest of the industry. We have manufacturers of supplies whose business would be doubled if we double the production. We have big-hearted editors of bee-papers who will help us every way they can; and all these, and the others who will be benefited by the uplift, must work, individually and as an association, to increase the consumption, stimulate the market, and stiffen the price of honey. Alone, each of us can do a little; but all together, like a well-drilled army, we can do wonders in this direction. Do *you* belong to the association? If you do, get busy and boost. If you do not belong, get busy and join so you can help boost. If you have only 200 lbs. of honey for the market it is a good investment, and the association wants you.

GEO. W. WILLIAMS,
Secretary National Beekeepers' Assn.
Redkey, Ind.

How to Prepare a Car of Bees for Shipment

I am going to ship a car of bees to my place in a few days; and as I have never done any of this work I don't know much about it. They will be shipped only about 150 miles. You people have had considerable experience, and any thing you suggest will be gratefully received. I shall have to change roads on the way. How can I get the car transferred most quickly?

St. Joseph, Mo., April 7. J. F. ARCHDEKIN.

[In shipping a car of bees from one point to another, especially where they have to be transferred. it is very important that arrangements be made well in advance before the car is started. To that end ask your agent to have the matter looked up so the transfer can be made promptly at the transfer point.

The hives should be very securely braced in the car to prevent any jarring or shaking one way or the other. The hives should be loaded so that the frames will be parallel with the rails. If you have as many as two or three hundred colonies it will be necessary to make a very strong and rigid framework to hold the hives in tiers one above the other. The frames should be fastened if not of the self-spacing type, and during hot weather there should be a wire screen at the top and bottom of the hives. In addition it is important to have water along so that the bees can be sprayed if they get too warm or get to roaring too much in the hives. Of course, it is important to have a man go with them, and he must be prepared to stay up with them almost night and day until arrival at destination.

It is desirable to get the car as far forward in the train as possible to avoid the smoke from the locomotive; and, besides, at that point there is a little less jerk when the train is started and stopped.

We cannot emphasize too strongly the importance of having very strong framework, for the concussion of the train is something terrific at times, and it will knock down almost any ordinary light framework unless the whole thing is made rigid and strong.—ED.]

Combs Melting Down

As a bee country this upper Sacramento Valley is nothing to brag of. During a long warm or hot season the heat is sometimes excessive. The past summer combs and foundation melted to a considerable extent, and shade and ventilation did not prevent it. With hives ventilated both below and above, and top and sides shaded, I had much loss from melting combs. The strong colonies suffered less than the weaker ones. A neighbor beekeeper had his comb honey melted in the upper story of his house, which was well ventilated. The air seemed to be actually hotter outside the hives than in them

Orland, Cal., Jan. 25. P. P. MARTIN.

A. I. Root

OUR HOMES

Editor

> At the same time came the disciples unto Jesus, saying, Who is the greatest in the kingdom of heaven?
>
> And Jesus called a little child unto him, and set him in the midst of them,
>
> And said, Verily I say unto you, Except ye be converted, and become as little children, ye shall not enter into the kingdom of heaven.—MATT. 18:1, 2, 3.

Just recently, in the city of Cleveland a new society has been started, called, if I am correct, the "Safety First Society." It came into existence because of the increasing number of children maimed or killed by electric cars, automobiles, motor trucks, etc. Its object is to educate the children, parents, teachers, and everybody else, for that matter, how best to avoid the deplorable and *preventable* catastrophes chronicled in every daily paper. Proper teachers are to warn the children in regard to playing with matches, drinking or eating stuff out of bottles, running before automobiles or street cars, etc. Children and others are also taught what to do when their clothing is on fire; remedies for poisons, danger of going in swimming when very warm; reviving a drowned person, etc. I think these matters are to be not only brought up in our schools, but "taught up" as well. God speed the undertaking, and may it *speedily* bear good fruit.

The whole matter was brought to my mind by an incident of less than a week ago.

We had just been having a heavy rain, and the ground was just in trim for setting out plants. By mere accident, as it seemed, I went down to the lower part of our garden (where it adjoins the "swimming-hole" in the canal), and commenced transplanting cassava "rooted cuttings." Looking over the wire fence I noticed two boys, perhaps a dozen years old, preparing to go in bathing. As I overheard their frolic as they chattered and splashed in the water I got to thinking what a fine thing it was in many ways to have a safe place where children could be happy in the water. After a little time I heard sounds that did not seem exactly like "play." I found one boy standing on my side in the water, and the other on the far side, apparently diving again and again. While I was wondering that a boy of his age could remain so long under water, it suddenly occurred to me he was exhausted, and I yelled to the one near me:

"The boy is *drowning!* don't you see?"

"Yes, I know he is."

"Well, hustle over there *quick* and pull him out!"

He only shook his head and didn't move.

"Hurry up, or he may never come up again. You *must* not lose a minute!"

Although his comrade and playmate was fast losing strength, and not a dozen feet from shore, and in comparatively shallow water, I *could not* get him to budge an inch. A responsibility rested on my shoulders I scarcely ever felt before. While I meditated climbing the high barbed-wire fence and plunging into the chilly water, old as I am, I caught sight of Wesley at work a few rods away. I yelled, "*Come quick!* boy drowning!" After some delay in getting Wesley over the fence he plunged into the water, I all the time hurrying him up. I did not know it then, but Wesley *cannot* swim. After he had waded until the water was up to his chin, and the boy still beyond his reach, he hesitated. Let me say here that never before have I known Wesley to hesitate an instant when I told him what to do. The boy lay on the bottom, and had ceased to move, and I was in mental agony for fear he would get down into the deep water. I said, "Wesley, you *must* push on and get the boy before it is too late," and then, oh how I *did* pray that the next step might find higher footing, and the prayer was answered. Wesley dragged the apparently lifeless body to shore, and after I had directed him to put his head down hill so the water could run out of his lungs I alarmed the neighbors, then I rushed back and called to Wesley:

"Any sign of life?"

I thought of the prophet Elisha and Gehazi, and then called back, as I was off quite a distance.

"Now put his head up hill, and roll and rub him!"

Then I got to a telephone and called a town doctor, and also got Dr. Morgan (one of our family of beekeepers), who is old like myself, and many years out of practice. I prayed again as I ran back; and when in sight, as I heard the welcome news, "Boy is all right," I changed my "prayers to praises."

Wesley says there was no sign of life until the boy coughed and sneezed, and expelled great quantities of water from his mouth. When I talked about getting him home, he laughed and said, "Ho! I am all right," and the two started off as merry as if nothing had happened; and although he promised me to tell his father all about it I am really afraid that, child fashion, he will forget to say anything about it. The doctor felt his pulse, and said he guessed his narrow escape had done him no harm.

Just a few days ago a beautiful bright little girl was shot and killed by her brother, in our neighboring city of Akron. Her father, as former sheriff of this county, had a revolver; but as he always removed the shells when putting it away it was a mystery for some time as to how it could have been loaded. Finally it was discovered that a young brother found where the shells were kept, and put one in the revolver as he had seen his father do. Shall we all not be more careful of these murderous firearms? If they *must* be handled, shall we not avoid letting the children get even a *sight* of them? Year in and year out, our papers are telling the old, old story, "Didn't know it was loaded."

TEMPERANCE

"GOD'S KINGDOM COMING."

We clip the folowing from the Cleveland *Plain Dealer* for April 6:

DANIELS PUTS END TO LIQUOR IN NAVY; ORDER CONSTITUTES NOTABLE VICTORY FOR PROHIBITION FORCES; GOES IN EFFECT JULY 1; EDICT WILL PREVENT USE OF INTOXICANTS ON ALL SHIPS AND LAND STATIONS.

Secretary Daniels to-night made public an order which not only will abolish the traditional "wine mess" of officers, but will bar all alcoholic liquors from every ship and shore station.

This order, one of the most notable victories ever won by prohibition forces, was issued on recommendation of Surgeon General Braisted. It reads:

"The use or introduction for drinking purposes of alcoholic liquors on board any naval vessel, or within any navy yard or station, is strictly prohibited, and commanding officers will be held directly responsible for the enforcement of this order."

In a statement issued to-night Secretary Daniels said:

"I am in hearty agreement with the views expressed by the surgeon general in his paper accompanying the recommendation. There should not be on shipboard, with reference to intoxicants, one rule for officers and another and a different rule for the enlisted personnel. The saddest hour in my official life is when an officer or enlisted man must be punished for intoxication.

"During the past week it has been my painful duty to approve a courtmartial for dismissal from the service of an officer for intoxication. He told me that he had never tasted intoxicating drink until he did so in the wine mess on his cruises. Others, who have been disciplined for drinking to excess, have made similar statements to me.

"Officers are now commissioned at the early age of 22 years. Has the government a right to permit this temptation which too often destroys the highest usefulness of young officers? I think not. If there is one profession more than any other that calls for a clear head and a steady hand it is the naval profession. Experience has shown the wisdom of having no intoxicants on our ships for the young men who enlist."

Some time ago I read the Chicago *Record-Herald* with much interest; but its liquor advertisements were so offensive I protested. As it seemed to do no good I dropped it. See the following from the *American Issue*:

RECORD HERALD CUTS OUT LIQUOR ADVERTISEMENTS.

The Chicago *Record-Herald*, one of the great daily newspapers of the United States, in its edition of last Sunday, gave notice that it has decided to eliminate liquor advertising from its columns. It will fulfill its existing contracts to print this class of advertising, and having done that it will accept no more. In a statement of its position the *Record-Herald* says:

"The *Record-Herald* goes into many thousand homes. In virtually all of these homes there is an abiding sense of the need of protection against the use of the liquor traffic, especially for the young. In constantly increasing degree there is abstention from the use of liquor for the sake of the young. There is the haunting fear, that from the first indulgence the young and unformed character may unconsciously drift into an uncontrolled and destructive habit of excess. Liquor advertising does not discriminate between use and abuse. It commends without reserve what the best social sense of the day more and more disapproves as dangerous."

This places one more of the great newspapers of the country in the rapidly filling column of those who refuse to be longer known as barkers for saloons for the sake of the dollar.

VOTING WET, LICENSING SALOONS, ETC.

The following was sent us by Dr. A. F. Bonney, Buck Grove, Ia., and it seems to me it sums it up pretty fairly.

I am the mightiest king that ever lived. Other monarchs have yielded to me as a child to its sire. I have in every land laughed at their gods, from Osiris to Jehovah.

With my breath have I wiped whole nations from the face of the earth.

For me men discard honor, and women virtue. I destroy ambition, shame priests, debauch nuns, ruin statesmen, and—still they love me.

I fill the insane-asylums and the prisons. I house my subjects in hovels and feed them on husks. Still they love me.

Fathers give me their sons, mothers their daughters, maidens their lovers, and—beg me to stay.

With one touch have I ruined great industries.

Judges yield to my power, and advocates forget under my spell to plead.

I burnt Rome. With one touch have I sunk navies and destroyed great armies.

I never sleep.

I turn gold into dross, health into misery, beauty into caricature, and pride to shame. Yet the more I hurt the more I am sought.

I by turns raise a man to highest heaven and sink him to deepest hell.

I am Satan's right-hand man. I do his work freely, cheerfully, and without pay; yet the father of lies is ashamed of me.

My name is Rum. Have you ever heard of me?

Just now I am a little pressed, and I ask that you sign my next petition of consent, for only I can turn men to brutes and women to worse, and have them still seek me, and continue to until I am driven out. Help me. Give me your son, your daughter, your lover. Give me your honor, wealth, and life. Just now I need the help of honest men.

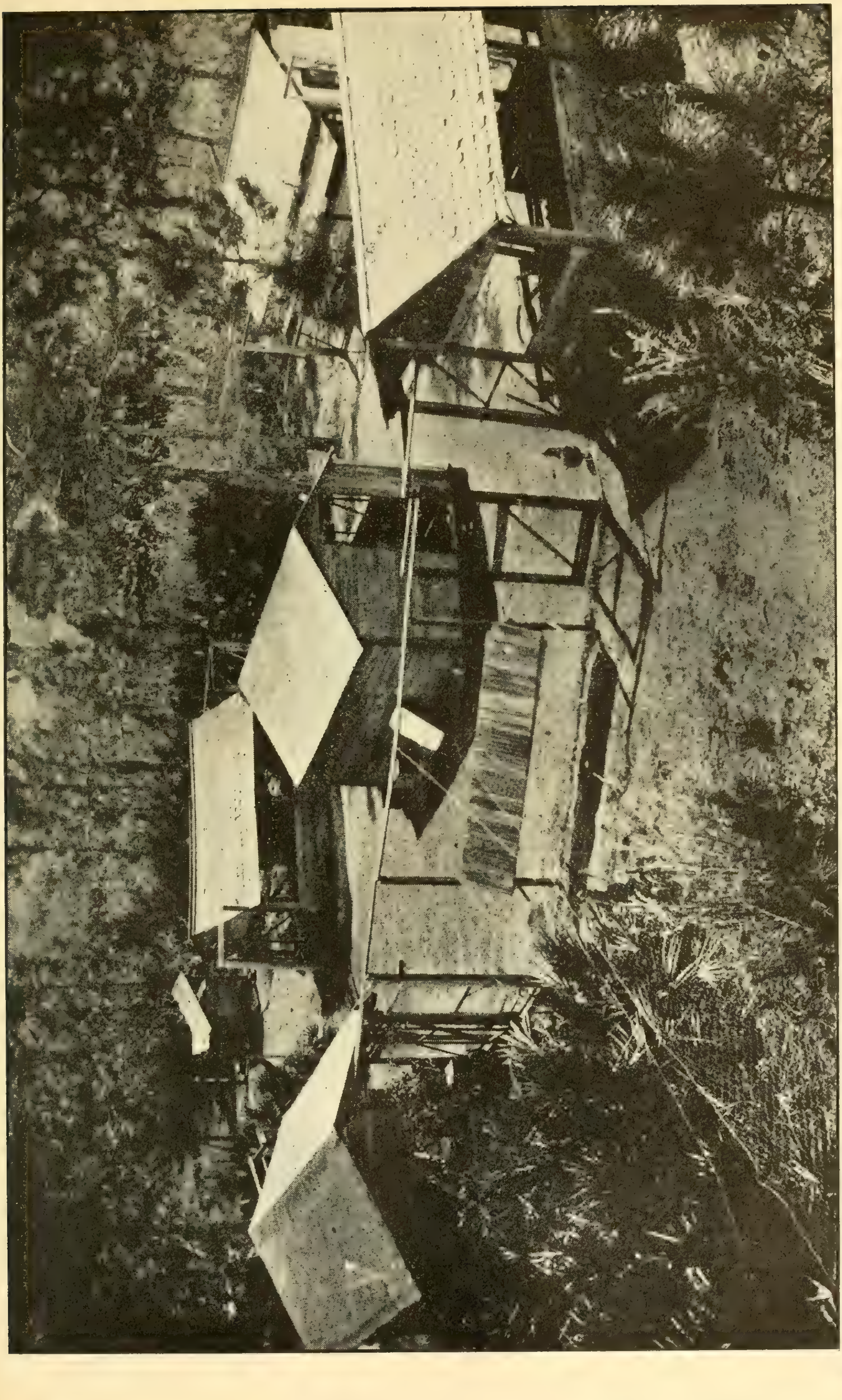


FIG. 1.—Our "convergent" poultry yard and buildings as it appears, adjoining our Florida home at Bradentown.

POULTRY DEPARTMENT

THE CONVERGENT POULTRY-YARDS UP TO DATE; SEE CUT ON PREVIOUS PAGE.

In GLEANINGS for July 1, 1912, I gave you some diagrams, etc., of the above poultry-yards. These pictures were at the time largely theory. I now take much pleasure in giving a real picture of the place where I spend many happy hours. Ernest secured the excellent view of it all by mounting a long ladder (with his kodak) leaned up against one of the pines, such as you get a glimpse of in the picture. Suppose I go over it with you all, something as I take visitors through it and "explain things," as I do more or less almost every day.

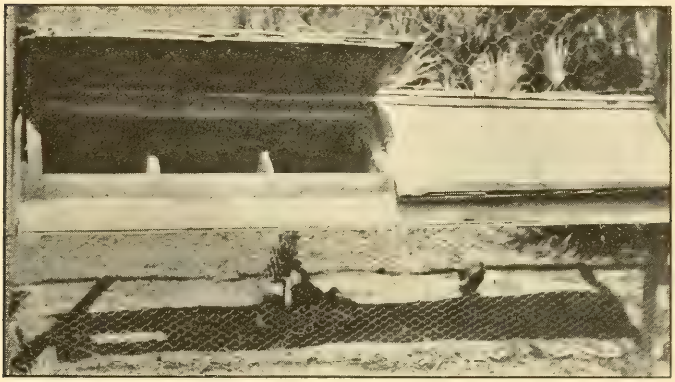


FIG. 2.—A view of the other side of the nest-boxes shown in Fig. 1.

The central building is the granary where all the feed is stored, and where we have a bone-mill for grinding bones and scraps of meat from the butcher's, about twice a week. On the north of this building you will notice two boxes, one containing ground oyster-shells and the other mica crystal grit. The whole crowd of about 100, big and little, visit these boxes almost constantly; and just a few days ago, when the gate was left open, I noticed the Indian Runner ducks (18 in all) greedily gobbling up the crushed shells. As they run in the canal every day (see picture of "waterfall") I supposed that they found plenty of shells on its pebbly bottom. However, as we are now getting from 12 to 15 duck eggs every day I concluded to give them all the shells they wanted. The ducks have a yard where they stay nights, at the upper left-hand corner. There is a very small structure where they can get out of the hard rain in their yard; and the lane where they get down to the canal is just beyond this small covered shanty. If I don't get around promptly to open this gate at 8:30 A.M. there is a chorus of 18 voices in protest.

On the north, south, east, and west of this granary, and at equal distances from it, are four similar buildings. Each one is divided in the middle with a wire partition, thus making eight separate houses, and each of the eight has a separate yard, the division fences running out like the spokes of a wheel. These fences go out off in the woods as far as the chickens care to travel. You can see one fence in the foreground. It is looped up to a stout wire. When this fence reaches the "inner court," as we call it, you see a group of eight covered nest-boxes. As I am an old man, it is something of a task for me

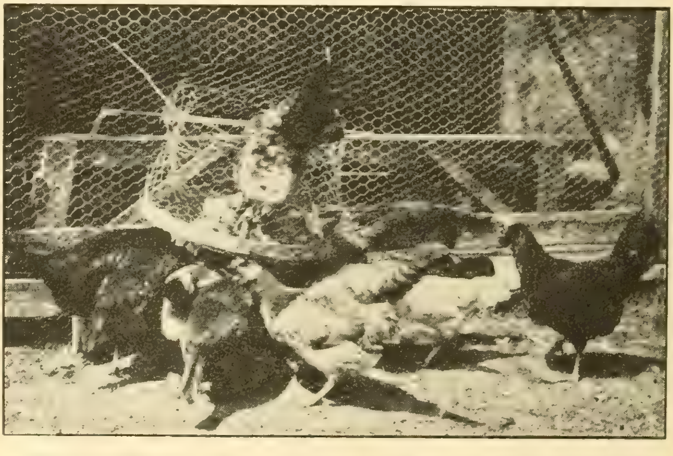


FIG. 3.—The wire netting basket used when I feed the flock lettuce, mustard, cabbage, beet-tops, etc.

The R. I. Red hen that had 20 eggs and hatched 19 chicks. I tried to call them up with a head of lettuce, but they were rather shy of the kodak, and skulked off among the palmettos.

to stoop over in gathering the eggs daily, and so I have the nests at a convenient height. The roof on the opposite side is hinged (see picture No. 2), and when thrown up and back I can get the eggs, handle sitting hens, etc., quite easily. The bottoms of the nests are inch netting, so all the fine stuff rattles through. I think this plan favors keeping out vermin. At intervals fresh dry grass is supplied. Each one of the eight apartments contains a galvanized tub fastened on top of a post about 18 inches high, and these tubs always contain wheat and corn. Even the small chicks soon learn to fly up into these tubs; but a Florida rat, never. Where each *diagonal* yard strikes the inner court, there is a pan of water; and this water is always clean and fresh, for the windmill keeps water dropping into the pan day and night. One of these pans is just visible nearly under the nest boxes, each pan supplying two yards, as you will notice.

I will explain right here that the original idea was to have all gates closed, and no fowls allowed in the inner court. Well, this is all right on the start; but I soon learned each flock will stick to its own house and yard pretty well after it has been kept shut up for a few days. It saves lots of work to leave the gates all open except the ones that confine them safe from intruders in the night time. It is my pleasant task to shut all the doors as soon as all are on the roost at night, and to open again as soon as it is light enough for them to want to go out in the morning.

I have told you elsewhere how we now care for the droppings; and it is a pleasant task to sweep out the inner court with a broom so it looks neat and tidy when visitors come around. I confess, however, when we have such abundant and frequent hard rains as we have had this winter, it sometimes is a little "sloppy" until the water soaks into the sandy soil, and to further this, Wesley and I have just been putting in tiles beside the surface drain around each building. A hundred fowls give about a dozen to each of the eight apartments, and if there are many more than this on one roost, there is more "nagging" by some of the older and more important "biddies." Each hen with her brood of chicks has a house and yard to herself, and I tell you this is a great convenience. I like to give the youngsters bread and milk; but when you do this you don't want any "grown-ups nosing around."

Oats are buried in the soft mellow soil

(with a cultivator) in every yard, about twice a week; and although the ducks don't scratch, they are as fond of digging out the soaked oats as are the chickens. When the young roosters get big enough to annoy the pullets they, too, need a yard all by themselves. In order to get a vacant yard, we often double up temporarily; and as each house and yard is a duplicate of the others, the moved fowls always know where to get food, drink, etc. Much has been said about dispensing with males; but a good rooster will keep his flock together, and will take them away off down by the canal and into new forage where they may get a large part of their food better than a flock of hens.

In cut No. 3 they were a little backward about crowding up around the "greens," because Ernest was a stranger. One hen, however, it seems, was immodest enough to hop into the basket and give us all a "backward" view in another sense of the word. Notice the different colors that crop out by my cross of Buttercups and Leghorns. Just now (March 10) we are getting from 35 to 40 eggs a day from 50 layers, and two days we had 44 eggs. At 30 cts. a dozen this, with the ducks, pays very well. A visitor remarked a few days ago, "Why, Mr. Root, with your fine outfit it almost looks as if you had nothing to do but "gather the eggs;" but I tell you such a ranch needs pretty close watching several times a day to do its best. Sitting hens should be spotted and taken away just as soon as a symptom is visible; and quite often *something* goes wrong that needs righting at once.

CASSAVA FOR CHICKENS, ETC.

Mr. A. I. Root:—Cuttings are about four inches long, cut ready to plant; are planted about 4 x 4 feet; or 4 x 5 on good well-drained land will make from ten to twenty pounds of roots per hill; does well on the high sand hills. It makes good feed for cows and pigs, horses and chickens, also for table use, grated and made up like sweet-potato pudding. Four pounds is equal to one pound of corn as feed. It will stand shipping by freight. I have grown it in this section for the past 25 years.

Loughman, Fla., Mar. 14. R. ADDISON.

HIGH-PRESSURE GARDENING

THE TWO DASHEEN TUBERS SENT OUR SUBSCRIBERS, ETC.

Since my brief notice that the tubers were ready to mail I have addressed more packages than I have for years past; but the kind words that came in almost every letter or on every postal card made the task a very happy one. I presume they are mostly planted by this time, either indoors or out; and you may be glad of some suggestions as they begin to show their snow-white shoots and unfold their pretty green leaves. Old decomposed stable manure will likely be the best "feed" for their tiny rootlets; then give them water as fast as they seem to need it. As they need much sun and heat give them a place sheltered from the cold winds. Although they are a sort of water-plant there must be good drainage. If they can get their white roots down into damp loose soil, that will suit them. Years ago I had a good deal to say about "Father Cole's" "New Agriculture." The plan was to gather and bury the rocks and cobble stones on the farm, in a pit. On top of the rocks was brush, old straw, and coarse stable manure, and then the soil. The roots of the growing crops would go down into the water between the stones and trash, and be immune to drouth. We have been clearing our wild land by burying weeds and bushes in the same way, and this suits the dasheen to a dot. Ours are at present making a most astonishing growth.

Now here comes in another most wonderful thing about this plant. After it has grown a foot high or more you will notice tiny suckers shooting out around the parent stem. This is the way in which it multiplies. So far as I know it never blossoms or bears seed. Well, these suckers, if left, will each make a tuber springing out from the central parent tuber, or "corm;" but if you want rapid increase take them off at any stage of growth, and plant them out. Our finest bed was made by taking up our old plants and separating them until each made a dozen or more, and not one of the lot even wilted a leaf. Some of our oldest "clumps" will now give us *20 or 30* good plants for a new plantation. Of course, this latter is possible only where the plant can grow every day in the year, because we have no frost. Let me repeat: Every bit of the plant is always edible every day in the year —the tuber under ground, the leaf-stalk, both under and above ground, and the green leaves on top of the stalk. It is not *only* edible, but delicious and nourishing food. Huber and his wife are here with us in our southern home, and they too seem never to tire of what we call "dasheen asparagus" and dasheen "spinach."

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Gleanings in Bee Culture

VOL. XLII. MAY 15, 1914, NO. 10.

POLLYANNA THE GLAD BOOK

By ELEANOR H. PORTER, author of "Miss Billy" and "Miss Billy's Decision;" illustrated, cloth-bound, $1.40 postpaid.

"Enter Pollyanna. She is the most irresistible maid you have met in all your journeyings through Bookland. She is so real that you forget that she is a story girl. After the first introduction you will feel that the inner circle of your friends has admitted a new member. A brave, winsome, modern American girl, Pollyanna walks into print to take her place in the hearts of all members of the family."

Twelfth Printing

Read some of the press comments:

"Pollyanna is the 'gladdest' book that was ever written. It is of more real value than any thousand sermons to which I have ever listened."—*Passaic Daily News.*

"It is a book that charms at once by its style, and delights by its character-drawing and the interest developed by the story."—*The Boston Journal.*

"Pollyanna is a delightful character, and the book refreshingly natural."—*Cedar Rapids Record.*

A Copy of Pollyanna as Premium

Send us two new yearly subscriptions to Gleanings in Bee Culture with remittance of $2.00, or your own renewal for one year and a new subscription for one year with remittance of $2.00, and we will send you postpaid as premium a copy of "Pollyanna."

The A. I. Root Co., Medina, Ohio

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Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.
H. H. Root, Assistant Editor. E. R. Root, Editor. A. L. Boyden, Advertising Manager.
A. I. Root, Editor Home Department. J. T. Calvert, Business Mgr.
Entered at the Postoffice, Medina, O., as Second-class matter.

VOL. XLII. MAY 15, 1914 NO. 9

EDITORIALS

The American Bee Journal thinks Dr. Miller is a half century younger than he says he is, viz., 38 instead of 83. If any man is young in spite of his years, Dr. Miller is that man.

We stop the press to-day, May 13, to announce the successful arrival of the first carload of 300 colonies of bees from Apalachicola, having been *en route* (thanks to the railroad companies) only five days. Every colony, thanks also to our good friend M. J. Deyell, who came with the bees, is, so far as investigated, in good order. Further particulars in our next issue.

The National Net-Weight Law

The reader's attention is directed to the article on national and State laws regarding the net weight on honey, on page 385 of this issue. Every one who has honey for sale (and that, of course, means most beekeepers) should read this very carefully.

Cartoons for Gleanings

We are pleased to announce to our readers that we have engaged one of the best cartoonists in the United States—Donahey, of the Cleveland *Plain Dealer*—to make a set of pictures for Gleanings. Mr. Donahey is a back-lot beekeeper. He has kept bees long enough to acquire a good working knowledge of the business, especially back-lot beekeeping. We have already received a series of his cartoons; and to say they are rich is putting it mildly. They will begin in our next issue.

Beekeeping in Alaska

It requires somewhat of a stretch of the imagination to think of flowers and bees in Alaska; but the flowers and bees are there nevertheless. We give herewith a clipping from the *New York World* of October 20, sent us by Mr. A. T. Cook.

> Fairbanks, Alaska, Oct. 18.—Two hives loaded with bees have arrived here, the first ever shipped to the interior of Alaska. They are for Mrs. Ed Wickersham and Mrs. M. M. Truxtun, who will experiment in bee culture. The fields and gardens in the Tanana Valley abound in flowers from the middle of May until the early part of September, and it is believed bee culture will be a success here.

Two different copies of Gleanings have been going to Alaska regularly, and it is to be hoped that the nucleus started by the two colonies mentioned in the clipping above may be increased as time goes on. Who can give us further particulars in regard to possibilities in Alaska?

Correction; Bees Wintered Well Around Philadelphia

In our April 15th issue, p. 282, editorial department, we stated that the bees had wintered quite well all over the country except in the vicinity around Philadelphia. Mr. F. Hahman, of that city, Secretary of the Philadelphia Beekeepers' Association, says that the bees never wintered better, and wondered where we secured our information. We saw a couple of letters from parties in the vicinity of Philadelphia early in the season, stating that they were fearful there would be a severe loss in and about the city, owing to the cold weather, and it looked like it at the time.

Beekeeping in Brazil

Brasilianische Bienenpflege, published in the German language at Porto Alegre, Brazil, publishes an account of our experiment with shipping bees to Florida, in its February number, and has the following to say:

> It is quite a distance from Medina to Florida, but thus far the experiment seems to have been successful, and it seems to us that our German beekeepers might well consider this matter of migratory beekeeping, which could be practiced to a considerable extent in this country as well.

It may interest some of our readers to know that, while the Portuguese language is the official language of Brazil, the German language is spoken almost exclusively in the southern part of that country, where there are extensive German settlements, and, incidentally, a large number of German beekeepers.

The fact that beekeeping pays in Brazil, and that the industry has developed to a considerable extent, would seem to be proven by the existence of a number of bee-papers, the one mentioned above being in its 16th year, and also by a number of beekeepers' associations. *Brasilianische Bienenpflege* is the organ of the " Syndicato Apicola Rio Grandense," and is edited by Profesor Emil Schenk, who also has charge of the apicultural section of the Brazilian Department of Agriculture. He has done a great deal to develop modern beekeeping in that wonderful country.

Some Honey; a Crop of 540,000 Lbs. by One Man

Mr. Emilio Hernandez, of Cienfuegos, Cuba, has on hand a crop of 850 barrels of honey, or, more exactly, 45,000 gallons. At 12 lbs. per gallon this would make 540,000 lbs. or 270 tons. Perhaps Mr. Hernandez will be willing to tell us something about his extensive operations in Cuba. We do not know whether he produced these 850 barrels in one season or not; but we infer that he did. Apparently his problem is not so much to *produce* a crop as to *sell* it.

Perhaps we ought not to stir up a hornet's nest; but just suppose there were a few hundred beekeepers in the tropics like Mr. Hernandez, and that we had free trade. Free trade or protection, we do not imagine, we have any need to fear very greatly, because we have nearly free trade as it is on honey, and, moreover, we do not, and probably will never have a few hundred or even a dozen beekeepers who will produce 850 barrels in a season.

Prospects for this Season

With one or two exceptions the reports of wintering have been most excellent throughout the country. The spring has been favorable, and rains have been frequent enough to keep the soil for clovers sufficiently moist. But it is only fair to say that in our locality, at least, the clovers are not as promising as they were a year ago; that is to say, they are not as abundant, but there may be enough to take care of the bee season later on. There is no reason, however, to suppose there will not be a fair crop of clover. Some of the heaviest honey years have been when clover appeared to be very scarce; but there have been other years when clover was everywhere, and yet not much honey.

Some very fine crops of orange honey have been secured in Florida. One crop, by Prof. E. G. Baldwin, of Deland, Fla., if we may judge from a liberal sample sent us, is some of the finest orange we ever tasted; in fact, we should call it pure orange honey. Prof. Baldwin will have no trouble in disposing of it.

A New Bee Journal in Porto Rico

The first few numbers of *El Apicultor*, the organ of the Porto Rico Beekeepers' Association, have just been received, the first number of which publishes a letter written by Dr. E. F. Phillips, dated December 11, 1913, at Washington, D. C., in which he promises to assist the said association in any way that he possibly can. Dr. Phillips expresses the opinion that the island of Porto Rico offers a wonderful opportunity for the beekeeper, and that the formation of the society will undoubtedly help to promote the industry.

Mr. J. W. Van Leenhoff is the editor of the above-mentioned paper, and the said gentleman is likewise the President of the Porto Rico Beekeepers' Association, which has been incorporated as a branch of the National Beekeepers' Association of this country.

Beekeeping has developed in Porto Rico in a most wonderful manner within the last ten years, and we have no doubt that the formation of this association and the publication of *El Apicultor* will help very materially to further the interests of the Porto Rico beekeepers.

Marchant's Scheme of Transferring Not an Entire Success

On pages 345 and 346 of our issue for May 1 we illustrated and described the A. B. Marchant scheme of transferring bees from box hives into movable-frame hives on a plan that involved but little labor on the part of the beekeeper. This scheme at first worked out all right for Mr. Marchant; but later on it failed so many times that he cannot now recommend it without at least some modification, and has so advised us. Our readers will, therefore, take notice and be governed accordingly.

We were somewhat skeptical, but as the scheme had worked out all right up to that time we thought it worth giving to the public. The difficulty seems to be that the queen will not go above in all cases. Her failure to do this, of course, would make the scheme a failure.

If more of our correspondents would be frank enough to admit that some of their new schemes, after being tried out on a larger scale, are not a success, it would be better for the beekeeping public. Perhaps the more critical ones will say that it would be better if the editor would go slower before giving them to the world; and to a certain extent that would be correct. But very often a discussion of these new and sometimes not thoroughly tried-out schemes develops a plan that finally proves to be a success. In this particular case Mr. Marchant has modified the plan, and later on will describe it.

Second Annual Report of the State Bee Inspector

WITH the second annual report on inspection in Iowa, the State Inspector, Mr. Frank C. Pellett, has incorporated the papers read at the second annual convention held in Des Moines, December 10, 11, and 12. The report as a whole is a great credit to Mr. Pellett, and will do an immense amount of good throughout the whole State.

Mr. Pellett makes the point that, according to the census report, more than one farmer out of every eight in Iowa keeps bees, but that the average value per farm was only $17.88 in 1910. However, most of the extensive beekeepers of the State do not reside on farms, and were, therefore, not enumerated.

Referring to the inspection, 311 apiaries were visited, and disease was found in 140. The total number of colonies inspected was 6973; total number diseased, 483. A considerable portion of those found diseased have been treated by the owner. In this connection Mr. Pellett strongly emphasizes the value of educational work.

A good description of the various diseases is given, including the disease sacbrood. There has been some inquiry from our readers of late in regard to this disease, and there seems to be some misunderstanding. We are, therefore, copying here the symptoms of sacbrood given by Dr. G. F. White, of the United States Department of Agriculture, as published on page 15 of the report.

> The strength of a colony in which sacbrood is present is frequently not noticeably diminished. When the brood is badly infected, however, the colony naturally becomes appreciably weakened thereby. The brood dies after the time of capping. The dead larvæ are, therefore, always found extended lengthwise in the cell, and lying with the dorsal side against the lower wall. It is not usual to find many larvæ dead of this disease in uncapped cells. Such brood, however, had been uncapped by the bees after it died. In this disease the cappings are frequently punctured by the bees. Occasionally a capping has a hole through it, indicating that the capping had never been completed. A larva dead of this disease loses its normal color and assumes at first a slightly yellowish tint. "Brown" is the most characteristic appearance assumed by the larva during its decay. Various shades are observed. The term "gray" might sometimes appropriately be used to designate it. The form of the larva dead of this disease changes much less than it does in foul brood. The body wall is not easily broken as a rule. On this account, often the entire larva can be removed from the cell intact. The content of this sac-like larva is more or less watery. The head end is usually turned markedly upward. The dried larva or scale is easily removed from the lower side wall. There is practically no odor to the brood-combs.

Along the line of treatment the shaking method is given for American foul brood, with some modifications. For European foul brood, requeening with pure Italian stock is recommended, and the shaking plan is also given, being recommended by Dr. E. F. Phillips.

Our Apalachicola Proposition; Four Carloads of Bees to Come Back from One Sent Down

THE last reports from our men in the field at Apalachicola, Fla., go to show that we shall certainly make an increase of three carloads of bees from the one sent down last November, and a strong probability of an additional car, or four cars in all. The first car starts May 8 by way of the river, Bainbridge, Ga., and Cincinnati. If it makes schedule time it will arrive at Medina on the 13th. The next two or three carloads will start May 20 or 22. One man will accompany the first car and two men the next two or three. Unfortunately the backward season in Apalachicola rendered it impossible to move the first car in time to get much of the fruit-bloom in and about Medina; so we have had to scratch around to find bees locally to take care of orchards in this vicinity.

Our boys have been able to secure a fair crop of honey, possibly enough to pay the freight on the bees back. But of this we shall speak more positively later.

The question may be asked whether our scheme of moving bees south for increase and honey, to Apalachicola, has been a success. As yet we are unable to give a definite answer. If we bring back four carloads of bees and twenty barrels of honey, the bees arriving in *good condition*, the venture will pay out well, without question; but

There's many a slip
'Twixt cup and lip.

There are 6000 new combs just drawn from full sheets of foundation. While they have all been wired they will not stand a trip of this kind of some 1200 miles like old combs. If the weather should prove to be extremely warm while the bees are on the way, and if there should be poor connections, we might lose a considerable number of bees on account of these new combs melting down. All of them, however, will be extracted so as to leave but very little honey in them—barely enough to carry the bees through to Medina.

To keep the bees cool there is nothing like having plenty of water at hand. There will be a barrel of water in each car, and these barrels will be replenished as often as they become empty. Past experience has shown that a carload of bees will use up a large amount of water—four or five barrels, perhaps, to the trip. If we can keep the bees cool by spraying or "wet blanketing" them, and if we can make good connections all along the route, it is safe to conclude the bees will get through in good order. In the mean time we are getting in connection with all the railroad people along the route to see that there is no delay. While the cars are moving there is no trouble to keep the bees cool; but when they stop for a few hours in midday the man in charge is kept busy in watering the bees.

The cars are to be hooked on as close to the locomotive as possible so as to avoid some of the bumping and to keep the bees out of the sulphurous smoke as much as possible when going through tunnels.

It is not expected that the men *en route* with the bees will have a Pullman-car trip. They will have to be up with the bees almost night and day to repair staging when an occasional bump jars it loose, and to fix the screens and give the bees water whenever they get hot. All kinds of weather, cinders, locomotive smoke, rain and shine, hot and chilly weather, cold lunches—all this is hard on the men, and of course it means extra time allowances. Taking it all in all, there are some heavy expenses in connection with a proposition of this kind; and the average beekeeper should go slow about making such a venture unless he can, from a financial point of view, stand a loss. If he moves all his bees south and then loses 50 per cent of them in moving back, even though he does make a good increase, he would lose out.

In our case we have one more bridge to cross, and that is to get the bees north in good condition. We shall be wiser and perhaps sadder by our next issue.

It is proper to say in this connection that the average northern man, even though he has had a large amount of experience in keeping bees will probably fail the first year after going south, for the reason that conditions are so very different. In our case we put a man in charge, Mr. J. E. Marchant, who was born and had been reared in Apalachicola, and who, under his father, A. B., had a very large experience in managing beeyards on the Apalachicola River before he went north. It takes a man of experience, both in the North and South, to make a scheme of this kind work out.

If we make a success of the plan this year, we ought to be able to do as well or better another year, because conditions this winter have been unfavorable. The cool months of February and March gave Mr. Marchant the blues. He had set his stakes for three carloads of bees and twenty barrels of honey; but when the whole of February turned out to be so cold, and the fore part of March being but little better, he began to be discouraged. But he made up his mind that the plan would *have* to succeed. So he has been crowding the queens by every means possible during the good weather we did have.* Had it not been for the unfavorable February and March we should probably have had all the bees up here in time to catch the apple-bloom. As it was, Mr. Marchant thought it best to catch the two tupelo flows and then move north.

The boys have been busy during the bad weather in making up hives and frames, and putting in foundation. No one knows, except the one who has tried it, that the nailing together and putting sheets of foundation in some 6000 metal-spaced Hoffman frames is no small job. No one man can do it in a month. In fact, it took an average of three men to do all the nailing and painting when they could not work the bees, between two and three months. They nailed and painted 500 hives with covers and bottoms, and 500 three-frame nuclei. Each colony and nucleus will be supplied with a queen—not of our own rearing, but of the rearing of Mr. A. B. Marchant, the father of the junior Marchant managing our bees. It will be seen, then, that we must charge up against the Apalachicola proposition queens, sugar for feeding, gasoline, launch rental, and a considerable amount of labor as well as freight; but as it would have cost us nearly as much to put the stuff together and paint it at our Medina factory, we will credit up this cost when the bees arrive in Medina.

There is one more item of expense, and that is platforms to hold the hives, and buildings to house the men during the bad weather; interest and depreciation. No one should get the idea that there is big money in moving bees south for increase and honey. There are some big risks as well as expenses.

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* He has been crowding his queens so hard in brood-rearing that many of them are failing, and the bees are superseding. When we consider the fact that the bees have increased from 275 colonies, not overly strong, to 800 fair colonies, and 500 three-frame nuclei, we can readily understand why the queens are beginning to fail and the bees to supersede them.

Dr. C. C. Miller STRAY STRAWS **Marengo, Ill.**

SMITH gets 50 pounds of honey per colony; Jones gets 60 pounds. What per cent greater success has one than the other? I venture the guess that there isn't a man connected with The A. I. Root Co. who can give the correct answer in less than ten words. Nor a woman either. [The answer seems easy enough. What is the "catch"? We do not catch on.—ED.]

TERRY and wife use 3½ gallons of honey a year, p. 280. That's 1¾ gallons each. I use 3¼ gallons a year for my morning drink alone. All the same, you're right that it would give honey a boom if all would use as much as the Terrys. It would take for the United States about 2,000,000,000 lbs. My only reason for using honey instead of sugar in my drink is that it is better for health, and I'm fairly long on health.

D. M. MACDONALD, *British Bee Journal*, 72, questions calling worker-bee "fellows," I suspect because they are females. The Standard dictionary gives as the first definition of *fellow:* "A person or individual: a term of familiarity applied to almost any person of the male sex, and occasionally to a woman." That ought to let in worker-bees, especially where "votes for women" have given women equal fellowship with men. But when our Scotch friend, speaking of the Americanisms of an author, says, "His roof is a 'lid,' his flightboard an 'apron,' and he speaks of the 'Porter' 'escaping bees,'" I'd like to have him name the author. A roof is always called a "cover" here, and I've never seen either of the three terms he quotes in American writing, although I have seen "lid" in British writing.

"BEES can carry a blight of any kind," p. 300. I wonder. "Active hold-over cankers exude a sticky ooze, attractive to insects, ... and any insects visiting such cankers will become covered with the germs," p. 299. Now, did you ever see bees visiting such cankers? Don't they go straight for the blossoms and alight nowhere else? You know well that bees are strongly inclined to stick to the same flower or other source of sweets. Now, suppose a bee should visit a canker; wouldn't it keep on visiting cankers? so where's the chance of carrying infection to trees with no canker? [You are taking our language too literally. Bees will have little occasion to visit a sticky ooze, even though it might be very attractive to other insects. What we meant to say was that bees might carry blight if it were where they would be likely to come in contact with it. We will admit we are not well informed on the subject of blight; but twig blight and pear blight could be, and are, carried by bees, and in a form that might find lodgment in blossoms.—ED.]

"THE OCCURRENCE of swarms going into other hives that have just swarmed" is mentioned, p. 293, as "not common." With me it was painfully common when a number of swarms issued on the same day with clipped queens. The bees not being allowed to go off with their queen, likely preferred to return to some other hive than their own, and the swarmy noise at other hives attracted them. One day I had a case of that kind. I moved the hive to a new place, and the bees soon found it. Then I put it on a wheelbarrow and trundled it about. As long as I kept on the go it was all right, but whenever I stopped the bees found it again. [The reason it was "painfully common" was doubtless because when it did come, it came in a painfully inconvenient time. We have had for years something like 500 colonies in and near Medina, and the occurrence of swarming bees going into other hives is not common with us. As we do not clip queens, because many of our customers prefer them unclipped, it may be that this explains the difference.—ED.]

ON page 283 there seems a desire to discover some artificial pollen that will work out just the same as natural pollen. May be that would be no real gain. O. O. Poppleton says, p. 281, "My problem is not so much to encourage brood-rearing as to keep it down," and in Germany "late-breeders" are in general preferred to "early-breeders." If we could get a colony a month in advance of others in brood-rearing, it is just possible it might fall below the others in its season's storing. [Perhaps with the Northern beekeeper there would be no real gain by artificial stimulation; but in the case to which we were referring, inciting bees to breed by artificial means in Northern Florida to secure increase would be a decided gain. If an artificial substitute for natural pollen can be found that will cause bees to breed up as readily as on natural pollen it will mean a great deal to many Southern beekeepers who desire increase, but who sometimes find there is no natural pollen, notwitstanding general weather conditions are favorable. There is seldom a scarcity of natural pollen in the North except very early in the spring; but it is often lacking in parts of the South.—ED.]

SIFTINGS

J. E. Crane **Middlebury, Vt.**

If Mr. F. A. Conner's jumbo hives are as great a success in producing honey as they are neat in appearance in the picture, page 183, they are a success, sure.

* * *

I have examined several yards of bees this spring, and those wintered out of doors appear to be in much the better condition in spite of the severe winter.

* * *

After reading Mr. Van Wye's experience in court, page 190, one can not help wondering if the old-fashioned rule of loving your neighbor as yourself is not, after all, the best way.

* * *

Wesley Foster says, page 166, that he has "made mistakes and always shall." Just so "me too;" but it is more than half the battle to acknowledge our mistakes. Give me your hand, my brother.

* * *

On page 163 Dr. Miller quotes from a German bee-journal the statement that honey from some soils contains 75 per cent more iron than that from other soils. This may have a bearing on the color of honey from different soils.

* * *

That house apiary of Mr. Newsome's, page 181, is certainly attractive. Such apiaries have some advantages. I run across them now and then in inspection work; but I find they have some disadvantages as well. They are, however, a complete protection against petty theft.

* * *

Do we beekeepers realize how fast the larvæ of bees grow? If a chicken were to grow as fast it would in a week weigh about 125 lbs.; and if a wee pink human baby were to grow as fast as these baby bees, it would weigh in the course of a week not far from four tons, and be as large as a good-sized elephant. These are, of course, estimates, and, like the weights on freight bills, subject to correction.

* * *

I will say in regard to that four-foot board referred to, page 85, by Dr. Miller. that one is enough for a yard. We give just one line across the board to a hive, and use shorthand thus. 27. s.6-20-×7-4 O. Let me read it: "No. 27 has a queen two years old; wing clipped; is strong in spring, and on June 20 found eggs in queen-cells. The queen was removed July 4th, and in seven or eight days a virgin queen was given, which in due time was found to be fertile." Having eight yards to look after, we haven't much time for bookkeeping, and a few signs seem to answer our purpose.

* * *

HOW THE MUCH-DESPISED SWEET CLOVER IS WINNING ITS WAY INTO FAVOR.

F. W. Lessor says, page 230, that sweet clover is a great crop, and he is going to sow nine acres of it this spring. Dr. Miller says, p. 205, that in his county the farmers have bought twenty bushels of the seed. A man in Kentucky writes me that he has sold a carload of sweet-clover seed; and our State Commissioner of Agriculture told me not long ago of a man in Kansas who had plowed up 4000 acres of alfalfa to sow to this despised sweet clover—not that alfalfa was not good, but that sweet clover was better, in that (for pasture) there was no danger of bloat in cattle. Let the good work go on.

* * *

REQUEENING WITH VIRGINS WITHOUT DEQUEENING.

On page 126, Feb. 15, I inquired how far young virgin queens could be introduced into hives having a laying queen, and have them become fertile, and take the place of the old queen without the trouble of looking her up. Mr. Adrian Getaz, of Knoxville, Tenn., writes me queens three or four years old will be destroyed invariably. Those two years old, not always. Those of the previous year's rearing will often succeed in destroying the virgins—how often, I don't know—perhaps in one-third of the cases—often enough to make the scheme unprofitable. I wish he would tell us how he introduces his virgin queens.

* * *

THE FELLOW WHO DOESN'T READ A BEE-PAPER.

An old gentleman offered me his entire lot of twenty colonies of bees in all sorts of hives, three years ago, for $60. I called to see him a few days ago. He was not at home, but his family informed me that the bees had increased to thirty-five colonies, and he was fixing them so as to put on sections, and had made 250 sections for use this season. I didn't smile—at least till I got away from the house. It wouldn't have been polite; but I couldn't help thinking that, if he read GLEANINGS or some other good journal, he would have wanted 2500 sections and 20 pounds of light foundation to go with it. How much it has saved him to go without a bee-paper or bee-book both in time and expense!

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

A TOO COMMON MISTAKE.

In GLEANINGS, April 15, are shown excellent photographs of various extensive apiaries, both of this country and from across the water. It will be noticed that the hives are in long rows, spaced the same distance apart in each row, and the hives entirely alike in almost every instance. In my own experience I found years ago that this was not the best way to place the hives, and I have called attention to the matter before. The danger of not only bees but queens mistaking the neighboring hives for their own is the main objection against such an arrangement. It caused me much trouble as long as I had the hives spaced in such systematic order on account of the many queens that were lost by going to the wrong hive. And this did not stop until I moved every other hive closer to its next neighbor so that the hives, while still in long rows, were arranged in pairs. Thus placed there is little if any danger of the above-mentioned trouble. I have wondered if other beekeepers who have their hives arranged in such regular order do not have these troubles. My information from a number whom I have asked is that they experienced a large number of missing queens, but they had not given the real cause of this any thought. After mentioning the matter as outlined above there was a general opinion that "there is something in it." What do others say?

* * *

WHAT TO DO WITH DARK HONEY.

The following letter has been forwarded to me for an answer:

> Louis H. Scholl's objections to selling off-grade honey have prompted me to write for information. I agree with him in regard to the evil effect of selling the "stuff," as he terms it; but the question is, "What shall we do with it?" In my immediate locality we have honey-dew in almost unlimited quantities in the summer, just after the main honey harvest, and this is often mixed by the bees with more or less good honey. It is never mixed enough to make it any thing like a good grade of honey; but we are often compelled to extract quantities of it in order to make room for the queen to deposit her eggs; and as we don't need it for feeding purposes there is nothing to do with it but either to sell it, give it away, or dump it in the river. There is no market for it that I have ever been able to find. The biscuit companies refuse it, as they say they are not permitted to use it in their goods. If you can suggest some way to use it, or some profitable way of disposing of it, it will be appreciated. Would the name "honey-dew honey" on the labels of this grade of honey conform to the pure-food laws, or would the word "honey" have to be left off entirely?
>
> Jonesboro, Tex., March 27. T. B. CANTRELL.

My claim is that we should not put any inferior grades of honey on the market as a good many beekeepers have done and are still doing from year to year. The result is that it has a material bearing on the price good honey ought to bring, and therefore should be avoided. In our own case we have a good deal of quite dark honey at times, and sometimes we get very light-colored honey. Now, instead of selling the very light honey alone, we use it with darker honey to make a light-amber blend that we have been selling for years. Long ago we found that this is by far the best method of procedure in a locality where honeys of different colors are harvested. We find it difficult to get enough more for our very light honey over a good light-amber grade to warrant us in selling it separately, and then, perhaps, run the risk of not being able to dispose of our darker grades. A good light-amber grade of honey always finds a ready market at a good average price. Besides this we now avoid the occasion for sending a customer some very light honey at one time and then filling his next order with dark honey or *vice versa.* Either may cause reason for complaint.

My advice about the handling of the honey crop in your locality would be to harvest your main crop just before you get any honey-dew mixed with it. The honey-dew honey can then be left on the hives for winter stores here in the South, as we have not found that any evil results follow its use as it might do in the North and East. In my own apiaries I would provide the queen laying room in some other way and leave the honey-dew in the combs for feeding stores in the spring. The result of this extra amount of food material during the heavy breeding season in the spring would mean rousing colonies for the honey-flows later. I am sure that it could be used to great advantage for this purpose. Instead of putting it on the market in the form of "honey," especially if of dark color, I would turn this product into increase of bees and then sell the extra bees. Such an exchange would prove profitable. It would be far better to use it up in this way than to put it on the market at a low price. This always has a tendency to bring the price of better honey down. [Honey containing honey-dew can be sold under the name of "honey-dew honey." This complies with a ruling under the national pure-food law.—ED.]

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

BEES MOVING HONEY; A HONEY-BOUND BROOD-NEST.

A correspondent writes thus: "I should like to have you take up the subject of bees moving honey in your Conversation department in GLEANINGS. You advocate such in your "Management of Out-apiaries," where you speak of shaking a colony on to its own combs of honey that had been placed above a queen-excluder in an upper hive till the white clover begins to yield honey in sufficient quantities for work in the sections. You say that, when this upper hive is placed on the stand the parent colony has occupied, and the bees shaken from their combs of brood into it, they will carry the honey from these combs into the sections so as to give place to the eggs and brood the queen will fill them with. Now, I have never been able to get one colony to do such a thing. I note that Editor Root speaks of colonies getting honey-bound, and I have had many such cases myself, and that with plenty of room in the sections above. The past summer I placed heavy combs of honey right in the middle of the brood-nest to see what they would do with this honey. They shifted the nest and let the honey alone. If there is room, bees will move the brood-nest. If there is no room, they are "honey-bound."

I have no reason to doubt what our correspondent states. I have passed through just such experiences several times myself. But I found the removal of honey from the brood-combs to the sections in the supers depended on conditions, such as whether the bees wished to swarm, whether the queens were poor, or whether they were anxious for the queen to lay eggs, and feeding her for that very purpose. If the first two, then apparently nothing would cause them to remove honey. If the latter, nothing would hinder them from removing it from the combs in the brood-chamber, except no place to put it.

I well remember one colony which had commenced to work in sections nicely, when all at once they stopped and commenced to store more in the brood-chamber than in the sections. As this was a "pet" colony, and one I had made my "brags" on, I opened the hive to see what the trouble was. I found nine queen-cups started, and eggs in every one of them. I knew that swarming would blast all my hopes, so I determined on vigorous treatment. I cut out all the cell cups I could find, whether having eggs or not; put the frames having the most brood at the outside next either side of the hive, and those having honey in the center, believing I had things my own way.

Right here allow me to say that I have never had any success in stopping swarming through the cutting of queen-cells after the queen had laid in them and the "broody" fever had taken possession of the colony. After nearly half a century of this work I now consider such only a waste of time.

To return: Two days later I found "nothing doing" in the sections—opened the hive, found some twenty or more cell cups with eggs in, and the honey in the center combs untouched. I became desperate, cut out the cells again, and uncapped every cell of honey the brood-chamber contained, cutting the combs down even with the wood to the frames. Did they carry the honey to the sections? Not at all. It ran out at the entrance; and had it not been a time of a good flow of nectar I should have had a fine case of robbing on at the apiary. To clean up the "muss," they stored every available cell in the brood-combs with honey, started more cell-cups, and swarmed the next day with over forty cups with eggs in them. I now took out all the combs they had in the brood-chamber, filled the same with empty combs, hived the swarm back in their old hive, shook all the bees off their combs with the swarm, put the sections back on, and closed things for two days. I then looked in, found three combs cleaned for eggs, with eggs to the amount of perhaps a thousand in these combs. I next took out the other seven combs, and replaced them with seven combs containing solid sealed honey. Three days later the bees were making the combs in the sections grow like magic, and two weeks later I took off two supers of 44 sections each, and left another super of 44 sections well under way, while an examination of the brood-chamber found every cell filled with brood except those containing from five to seven pounds of honey and those necessary for pollen.

From this it will be readily seen that, when any colony is in a condition that makes them desirous of brood, they will feed the queen for the purpose of having her lay; and when they thus feed her they are sure to prepare the cells for those eggs if there is room in the supers for the storing of removed honey.

Now, if you will read "Management of Out-apiaries" carefully you will see that each colony, as far as possible, is brought

Continued on page 392

GENERAL CORRESPONDENCE

OPERATIVE COSTS IN BEEKEEPING; A VALUABLE ARTICLE FROM ONE WHO KNOWS

BY R. F. HOLTERMANN

The article of Arthur C. Miller, followed by your editorial on pages 290, 291, interests me. I believe the estimate of 10 per cent loss in the introduction of queens is not far from correct, although with me it generally runs somewhat less. I doubt if the beginner has a much heavier loss in introduction, as the rules for this work are pretty well known, and, if followed out at all, are likely to give just as good results with a beginner as with any one else.

In introducing queens, especially in the fall of the year, I feel sure that a matter that is overlooked is that, *at such time*, there are often two queens in the hive—mother and daughter. We found a large number of colonies in that condition last fall when introducing several hundred young queens.

STUDENTS.

In the footnote attached to the same article you are kind enough to value my time at 50 cts. an hour. The bee season lasts in all about six months, or close to 150 days. That would give me a wage of just about $750 per year. Would that not be a pretty handsome salary for a man who has been engaged for over thirty years in a business? I am afraid that, in counting the cost of honey production, there are a large number who do not consider that there are many days for a beekeeper when his time is worth little or nothing, and that he must " make hay when the sun shines."

Then as to students, you overstate what I pay them. I consider that it has cost me considerable to learn what I have by experience. Moreover, I have spent a good deal of money in going to conventions and privately visiting beekeepers. I am running something like 800 colonies; and whoever comes with me for a season should get the benefit of pretty long and wide experience. If a person goes to school, college, or university, it costs money, and I do not —*need not*—teach a young man his business and *pay him besides.* I have taken two more young men than usual this year, and could easily get as many more, to say nothing about several young ladies.

I want men of clean habits. I do not call tobacco-smoking a clean habit; for, even if smoking is not indulged in at work, or going back and forward to work with others, one using tobacco always smells of it, which is very unpleasant for those not using it. Then, if I judge from correspondence I have with those who are likely to be suitable, they come understanding they work as they learn, and get their board. That is all that is definitely promised them. Their washing is not promised them, but we have done that for them with the exception of fine shirts and collars. Then if I do well (which I fix as getting 50 lbs. of surplus per colony, spring count), *and they do well,* I promise them $35.00 at the close of the honey season, and the promise to stay for the season, April 15 to Oct. 1 (about).

I have no trouble in getting all the help I want, and I have generally succeeded in picking desirable and intelligent men. Mr. H. H. Root will not hesitate in saying I made a good selection last year.

What I expect from students is an interest in the work. The terms they come on would indicate that; but there is a great difference in men. Some are thorough in all they do, while others are the opposite. Some have their mind on what they do, and some have their minds on almost any thing except what they do. Others appear to have no mind at all. I have found, in the majority of cases, a well-brought-up farmer's son a good man. A shirker is a nuisance, and, as a rule, between us he manages to get his share of the load before the season is up.

Let me say here there is no trouble in sizing up people. It is only the selfishness of a person that prevents him from seeing that every one can read him as readily as he can an open book.

What I will not tolerate is a two-faced person—one who can do things well when some one is around, and any way but well when no one is around. I expect students to make mistakes sometimes. That is part of their tuition; but I do not expect them to make the same mistake over and over again. I do not expect them to make mistakes very often that a little foresight would have prevented. If they do it counts against them. I have much sympathy for a person not naturally very alert so long as I can see he is doing the best he can, particularly if he is frank.

I have had quite a lot of young men do well under my tuition and management.

Some, but not many, are fit to run 100 colonies after a season's practical experience. Others would be better off to take another season and work for pay with some one else, or to begin with half the number of colonies. Others have such careless ways, such a lack of thoroughness, that they had better not keep bees at all. I do not believe any one should make his first aim in life to earn his bread and butter. He should, rather, live for God; and what God gives him to do he will do well.

Brantford, Can.

[Our correspondent is one of the best beekeepers in North America—yes, one of the best in the world. The fact that he has been making money with his bees, and increasing year after year, shows that he is a business man as well as a beekeeper. Most business men have to pay dearly for their experience, and Mr. Holtermann is entirely right in contending that students that come to him to acquire practical experience should not expect ordinary wages. In former years, in England an apprentice had to spend seven years in learning his trade; and it was only during the last year or two of that period that he received any compensation whatever. If one desires to become a competent beekeeper he should be willing in some cases to work for nothing and board himself. In fact, we have two lady students who are coming to us this season, expecting to follow our experts around for what they can learn. Their labor will just about offset the inconvenience of showing them. The time may come, perhaps, when Mr. Holtermann will find that he can get all the help he needs from students who will be willing to pay for board and lodging, and in addition furnish their labor for what they can learn.

Perhaps we put Mr. Holtermann's hourly wage too low; but we figure it this way: The average expert beekeeper in most localities will consider that he is doing well if he earns 50 cents an hour; and in some cases at least the skill that will enable one to earn that wage during the bee season will enable him to make an equal compensation at something else during the other part of the year.

Mr. Holtermann says that he considers 50 lbs. average is doing well. He evidently considers this as a minimum figure on which to base his extra compensation, although during the season of 1913 his average would be, of course, beyond that. If we take a period of ten years, good and bad alike, the average might not come up to 50 lbs. Let us take a pencil and tablet and see how the figures run. Mr. Holtermann has 800 colonies, and he thinks his minimum "does well" if it is 50 lbs. average. This would make him 40,000 lbs., which, at 8 cts. per lb., would amount to $3200. The board and lodging of his students, including washing, would run up to about $5.00 per week, or $125 per season for one student. Six students would make this nearly $800. Depreciation on his equipment, and winter losses, on the basis of 10 per cent, would make another $800, or $1600 all told. This would leave him a net profit of $1600 for his labor, or what would be a little more than $5.00 for one year of 300 days or twice that for 150 days. His time then ought to be figured at nearly $11.00 a day on the minimum "do well." If he had only 400 colonies his earning capacity would be considerably reduced, and most beekeepers do not go beyond the 300 mark. But the late W. Z. Hutchinson advocated keeping "more bees." Let's see how this works out.

Four hundred colonies would make his gross income only $1600; but as his overhead expense would be higher in proportion his net income would be $800 or a little less than $5.00 for 150 days, or $2.50 for 300 days. If his knowledge and experience can enable him to handle twice the number of colonies, and make $11.00 per day, why shouldn't he keep 800, or, better, 1200 or 1500? That brings in new elements—more bee range which he may not be able to get, and longer distance to travel, and a greater cost of transportation. The "more bees" slogan can't be worked too hard.—Ed.]

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GOOD COMBS; THEIR IMPORTANCE, AND HOW TO PRODUCE THEM

First Paper

BY ARTHUR C. MILLER

One does not have to serve long as an inspector, nor do much visiting among beekeepers, to become impressed with the vast number of poor combs in use. But one is surprised that so many beekeepers have not the slightest idea of the great loss in using such combs.

Not only are there many poor combs, but many are so placed in the hives that half of their surface is not available for brood.

Part of this is due to faulty hives and part to careless spacing, though the self-spacing frames have largely overcome the latter. But it is of the quality of the combs that I am more particularly to write.

The standard L. frame of commerce has an area within bars of approximately 132 square inches, which, if filled wth worker cells, would contain approximately 6600 cells on the two surfaces. If we accept as a working hypothesis the figure of 3000 eggs in 24 hours as a queen's capacity, then one such comb will take two days' eggs, and 10 such combs (66,000 cells) will just do her for the 20 days and a fraction necessary for one cycle of brood.

But relatively very few "L" combs contain any such brood-cell area, either worker or drone, and very many contain a wastefully high per cent of drone. To illustrate these points I append photographs showing perfect, good, medium, and poor combs. In speaking of areas in what follows, I shall refer to one surface only. The good comb shown in No. 1 is nearly perfect. Incidentally I will say that I have hundreds as good or better. It not only costs no more to produce such combs, but it actually costs one less to produce them than it does other beekeepers to obtain poorer ones.

Comb No. 2 will be classed by most beekeepers as perfect, as almost the best they can ask for. It is a good comb, but it is not well fastened in, and there are nearly 30 square inches of waste space within the frame. Part of such is in the unfilled space next to the bottom and end bars, and part is in the shortened cells comprising the rounded edges of the comb. Under right conditions the space at the ends will be built in.

Comb No. 3 will pass for good by many. It is straight, firmly attached, fills the frame better than No. 2, but has about 20 square inches of stretched cells and drone comb, besides the short cells at the bottom edge, and the space next to the bottom-bar. All together it has only about 86 square inches of surface available for worker brood. Ten such combs are equal to little more than six like No. 1.

Comb No. 4 will be called poor by almost any one, yet the inspector finds many such, and many even worse, as he goes his rounds. It would take forty combs like that to equal No. 1 for worker-brood production.

Combs No. 1 and 2 are profitable to use; and if it were not easy to have combs like No. 1 then No. 2 would be almost good enough. But you may ask, "Why aren't they, any way?" Well, I never throw such away, you may be sure, but I am taking pains to get No. 1 type now.

Ten combs like No. 1 and 2, with a good queen and proper conditions, will furnish a beekeeper with a rousing colony. Ten combs like No. 3 and 4 will not. At best they have many per cent less available worker-brood area; and not only that, they contain an excess of drone comb, besides having stretched cells near the top-bar which will be filled with honey which should be in the supers.

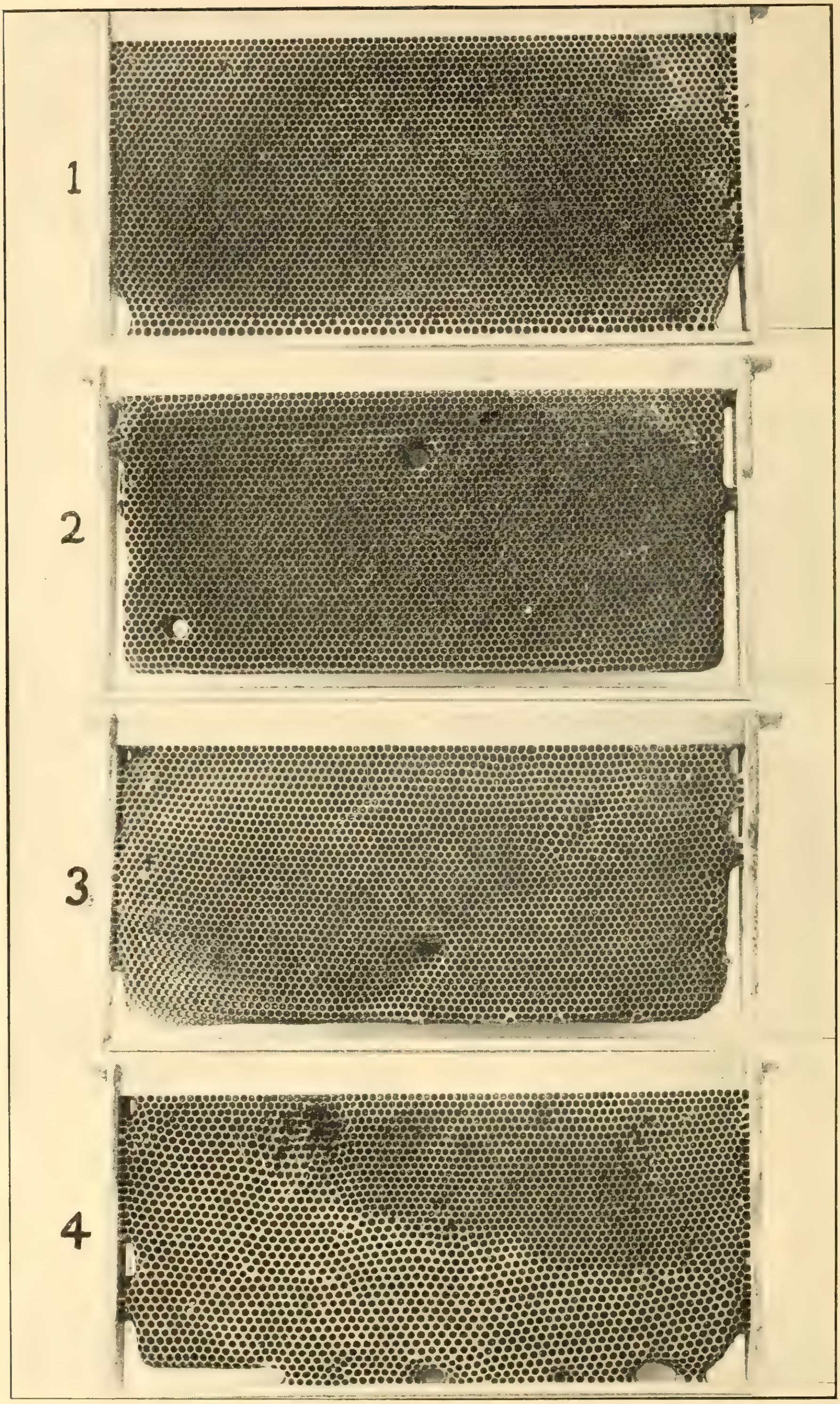
You hear of men advocating twelve-frame hives, two eight-frame or two ten-frame bodies for one brood-chamber. Examine their hives and you will, in most cases, find their combs are many per cent below what they should be. In other words, they are using double equipment in bodies, frames, and comb, or buying wide or deep hives at special prices, merely to get what they should and could have by proper attention to the production of their combs at the start.

Invested capital is too often lost sight of in the efforts to get results by manipulation of one kind or another. Do you hear the man who is talking two bodies for a brood-chamber mention that one body with combs represents a flat cost (without labor) of about $1.60, and that to get his desired results he proposes to invest $3.20 for each colony? He does not figure it that way. Those figures are based on his using full sheets of foundation in the ordinary way; and if his combs are of the average from full sheets, his two chambers will give more room than is needed.

If he chances to have tried to economize by using starters or half-sheets his double story may give him plenty of workers, but it will also give him a horde of costly drones.

I know one extensive beekeeper who, to economize, makes his own foundation, saying he cannot afford to sell his wax for 30 cents and buy foundation at 60 cents. He makes six L. sheets of foundation from a pound of wax, and then economizes(?) still further by using but half a sheet in a frame. His combs are only about 60 per cent efficient on a worker-producing basis. His foundation costs him five cents a sheet for wax; labor, he says, is nothing, for otherwise he would be idle in the winter. I buy foundation from the manufacturer at five cents a sheet, and have no labor in making, and get a better product than the man referred to. Who is the better off?

I use full sheets in nine of each ten frames, and a half-depth sheet in the tenth. I get the combs shown in No. 1 in nine frames, while the tenth is half drone. Why



1, perfect; 2, good; 3, medium; 4, poor combs.

do I do that? Because the bees insist on having some drone comb, and I prefer to have it all in one place, and have that place where it serves me best, which is at the *back* of the hive. My hives are all with the combs side to the entrance instead of end to the entrance. Why? Because I can work more easily with such arrangement; because I can remove most of the combs without disturbing entrance conditions—usually a small matter, but not always; because I can keep a small colony across the whole entrance where it can better defend itself, for I seldom fuss with reduced entrances except in extreme cases, and because my special drone comb is at the back, where it is not used until every thing else is full. The bees' convenience, or theory of warmth or cold, enters not at all into the arrangement. I use it because it suits me and serves my ends best.

The top-bar of that frame with the half-comb of drone is painted white—a practice I followed and advocated many years ago. So designated, it does not get put into other parts of the brood-chamber unless I purposely put it there for getting drones early or out of season, or from a special queen. But the instant the tops of the frames are visible, the location of such a comb is known.

I think I may properly call my ten combs so handled the perfection of comb efficiency and economy. My results (operations and colony conditions) are all that any beekeeper could desire, and I know that I do less handling and overhauling than most beekeepers.

There is one other item in my use of combs which has much to do with the results I obtain. My hives have half an inch more width inside than the standard, and the combs are offset from front and back walls rather more than two full bee-spaces. Why? See the solid sheets of brood in the outside surfaces of the outside combs and you will understand why. Does it pay? Go and examine the two outer combs in a standard ten-frame hive and you will see. The outer surfaces rarely have any brood, and the inner surfaces are not usually well filled. I cannot afford to lose the brood-containing use of one comb out of every ten; so, after I have obtained ten combs of the highest possible efficiency, I so place them as to have every inch available.

I think that the available worker-cell area in the run of ten-frame hives as the inspectors find them is equivalent to but six or seven combs of the No. 1 and No. 2 type.

If beekeepers would study their combs more closely they might discover the reason for some of the great differences reported from use of hives of different sizes, proportions, and protection. Poor combs are a serious loss to beekeepers in more ways than one, and it is the more grievous in that it is easily preventable.

I have said that it costs me less to produce my combs than it does the average beekeeper to produce less perfect ones, and in some future papers I will tell you how I do it. I use old and well-known methods, correcting a few errors, adding one or two things which I have found superior, all of which will be described and pictured, so that you can do the same if you will take the same pains.

In the meantime, ponder on the quality of combs, and the profit and losses arising from the use of the different kinds.

Providence, R. I.

IS THE SUPPLY OF HONEY LIKELY TO EXCEED THE DEMAND?

An Open Letter to Dr. Miller

BY RAY MITTOWER

Dr. C. C. Miller:—I am writing to ask you for a little advice. I am a man in my twenty-first year, and it is time I made up my mind what my occupation will be. I am a farmer's boy, and I have kept a few bees for the last eight or nine years. I take great interest in them, and have been successful, as this is a good location. I have always thought that I would make beekeeping my business. This part of the country is favorable for the production of comb honey. Here is where I should like to have your opinion. Is the supply of honey likely to become greater than the demand? Will honey be so plentiful that it will be a drug on the market, and the prices be so low that beekeeping would not be a paying proposition? You will find a little article on this subject in the Feb. 1st issue of GLEANINGS, page 89, by Wesley Foster.

West Lodi, Ohio, March 2.

[Dr. Miller replies as follows:]

All that Wesley Foster says is, unfortunately, only too true, and he is doing good service in trying to get beekeepers to face the situation. Your question is an important one, "Is the supply of honey likely to become greater than the demand?" A search for the answer involves two other questions.

1. Is the supply of honey likely to become greater than the amount that can and ought to be consumed for the best interests of the public in general? The annual consumption of sugar in the United States is something more than 80 pounds for every man, woman, and child. I think the general consensus of opinion among the medical profession is that this is detrimental to the general health. There is probably little doubt that it would be greatly for the public good if three-fourths of this amount should be replaced by honey. Let us, however, be modest in our demands, and say that one-fourth of that amount should be replaced by honey. Let us be even more modest than that, and say that enough should be added to the amount of honey now used to total one-fourth of the number of pounds of sugar now used. That would make 20 pounds per capita. To supply such a demand would require a vastly increased production, such as is very unlikely to be reached in your lifetime. So we are pretty safe in replying to our first question that there is little danger that more honey will be produced than can be consumed, and that *ought* to be consumed for the best good of the nation.

We now come to our second question: Is it likely that the people will—not *can,* but *will*—be so awakened to their own interests as to demand and consume the amount of honey that they should consume for their best good? Replying to this question, I must frankly say I don't know. It lies in the hands of two parties. It lies in the hands of those public officials who are looking out for the public health, as the first party. The tendency is now in the direction of increased care for the health of the people; and if that tendency continues we may yet find government doing as much for the health of folks as it has been doing for the health of hogs. When that time comes, one of the things it may do is to urge the consumption of less sugar and more honey.

The other party to whom we must look to make known the virtues of honey is the brotherhood of beekeepers themselves. If they were all as wideawake to the necessities of the case as Wesley Foster, the case would be hopeful. Alas that they are not! Whether they ever will be to the extent of taking concerted action is one of the things in the realms of the unknown.

There remains, however, the possibility of individual action. There are individual beekeepers who have done much to educate the public in their immediate vicinity, and this offers an inviting field to any young man who contemplates adopting beekeeping as a permanent calling.

Suppose you are located in or near a city of 2000, or in a rural community of that size, and that you have the field to yourself It ought not to be an impossibility for you, by a continuous persistent effort, to educate your clientele so that they would consume the 20 pounds per capita already mentioned. That would call for 2000 times 20 pounds, or 40,000 pounds of honey. That looks as if there would be no trouble about the demand, but that you might have trouble about securing the supply.

I am not a prophet; but if I might be allowed to make a guess, I should say that the prospect for the right man is just as good now as it ever was, if not better.

Marengo, Ill.

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EXPERIENCES OF A VETERAN BEEKEEPER

A Monstrous African Bee-tree; the Remarkable Career of a Beekeeper, Missionary, and Explorer in Africa

BY REV. J. M. LEWIS

I have read with unusual interest the writings of A. I. Root, especially those on health and how to live long, and his frequent references to Terry. In looking at their pictures, which have at various times appeared in GLEANINGS, and having noted their gray hair and other marks of advanced age, I have wondered if, with their careful diet and rigid mode of living, they were more robust and energetic than the average, or had retained their youthful appearance above the average man of seventy.

I am sending you a photograph taken on my 70th birthday. I think I can claim the honor of being a veteran beekeeper, having been born among the bees and keeping them at various times all my life. At the present time I have twelve colonies, and am doing nearly all the work on a small farm where I have three cows, a horse, and a hundred fowls. I have scarcely a gray hair; my teeth are exceptionally good, so that I crack nuts and bite off a twine string with the greatest ease. I have lived a very active life, and

A beekeeper who, in spite of an eventful and active life, is 70 years young.

much of the time a laborious and trying one. For several years I was employed in the manufacture of furniture and children's carriages, often making long trips, going over a large part of the South and West, buying stock and soliciting trade.

During those years I was interested in Sunday-school and evangelistic work.

In 1887 I was called to go to Africa, and in March of that year I started for the "Dark Continent," and entered the mouth of the Congo River two weeks behind Henry M. Stanley when in search of Emin Pasha. I traveled a thousand miles into the interior and went where a white man had never been, going several months without seeing the face of a white man. I encountered many dangers, and some narrow escapes from death, and endured hardships trying in the extreme.

After five years of missionary work in the hottest part of the world I returned to my native land with health impaired, but with courage and a good constitution, and took up pastoral work. My longest pastorate was seven years, and the shortest two years, with one of three and one of four years. I concluded that, by long service, I was entitled to a less strenuous life.

THE LARGEST BEE-TREE IN THE WORLD.

I retired to the farm where I could keep bees, which have been one of my hobbies, and one I can ride with a great deal of "sweetness" and very few stings. I not only have the honor of being a veteran beekeeper, but of discovering the largest bee-tree in the world, a photograph of which I send you (see Fig. 1), with some others taken while in Africa. I also claim the honor of making the first and finest collection of photographs of that country ever brought to America.

The tree is the baobab (*Adansonia digatata*). It measured sixty-five feet in circumference. The bees entered the body of the tree near the first branches. Some of your readers may ask if I cut the tree down to get the honey. Not much. Too hot. Fig. 2 is the trunk of the same tree with four boys standing several feet apart to show its enormous size.

No. 3 shows the blossoms of the tree, any one of which would nearly fill a peck basket. The fragrance is delightful, and can be detected a long distance.

Fig. 4 is the oil palm showing how the natives climb the trees. They gather the fruit, which they use for food, and also the sap, which they drink. This is procured by

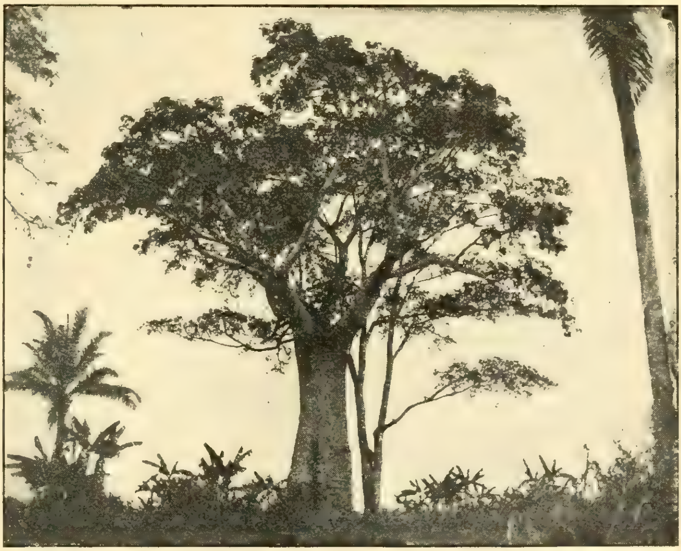

Fig. 1.—The largest bee-tree in the world—65 feet in circumference.

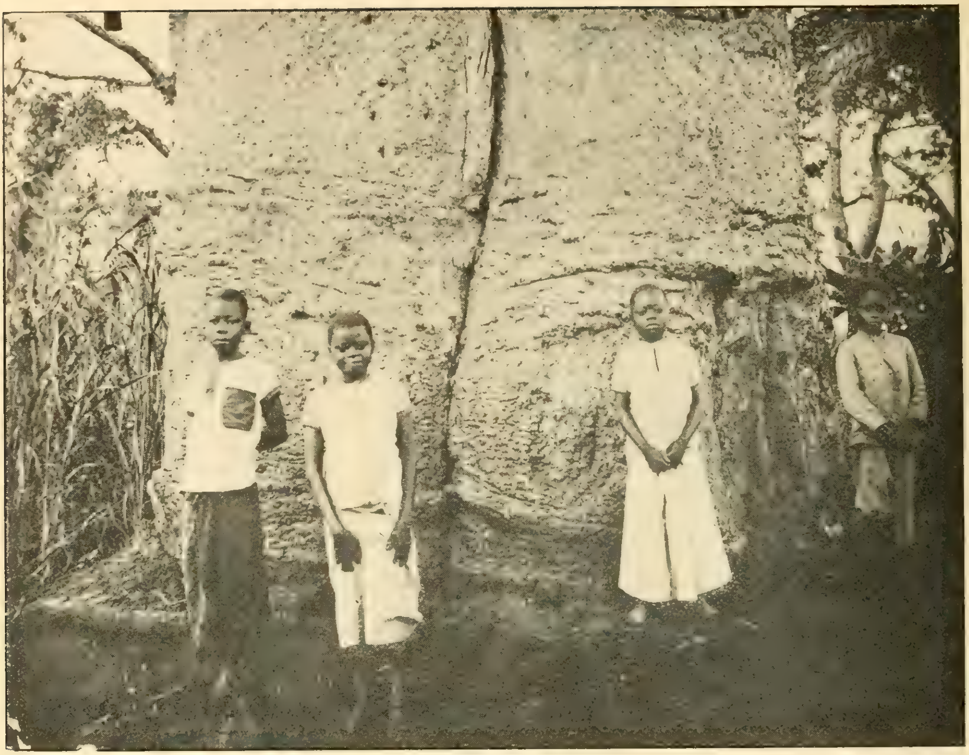

Fig. 2.—A closer view of the largest bee-tree in the world. The native children in the foreground give an idea of its size.

cutting a gash at the base of the leaves. The blossoms of the tree attract the bees, which procure honey from them.

Fig. 5 is an African jungle where the hum of the bee and other insects is heard by the thousands, and where also is the home of the elephant and leopard besides many reptiles.

Fig. 6 is one of my latest productions by way of a fancy hive. It is made in three sections, and is double-walled. The inside is a regular ten-frame Danzenbaker with two supers. The foundation on which the hive stands is of stone laid in cement. The stones were gathered from Maine to California, some from all the New England States, and some from foreign lands. One of them a friend brought from the shores of Galilee, where Christ spent so much time with his followers.

In closing this rambling article I want to say that I believe it is not so much *what* we eat that gives us a long and vigorous life as *how* we live. I have eaten nearly every kind of food that ever found its way into a human stomach, and food cooked by nearly every race of people. I have lived among cannibals; but while among them I ate no meat—for my own *special* reason. I have sailed on English, French, Spanish, Portuguese, and Dutch steamers, and ate what was set before me, and asked no questions. I have a good constitution, inherited from the old New England stock, many living fourscore years and more. As a child I was considered frail, but have wept at the graves of many of my associates and friends whose prospects for a long life were far better than mine. I have always been strictly temperate, using no intoxicants nor tobacco in any form. Unlike Bro. Root and Terry I do not care to live to the century mark. In tracing my ancestry back for more than four hundred years I find some of them nearly reached that age. The oldest recorded was over 97.

I am not so much interested in what the next thirty years will accomplish by way of great achievements as I am in the great unknown and the Father's house where are many mansions, and the location of that city which is to be my future habitation. I would rather leave this world with an active brain and a mind unimpaired by the feebleness of old age than to reach the century mark with mind gone and body weak and tottering, and a burden to those around me.

North Westport, Mass.

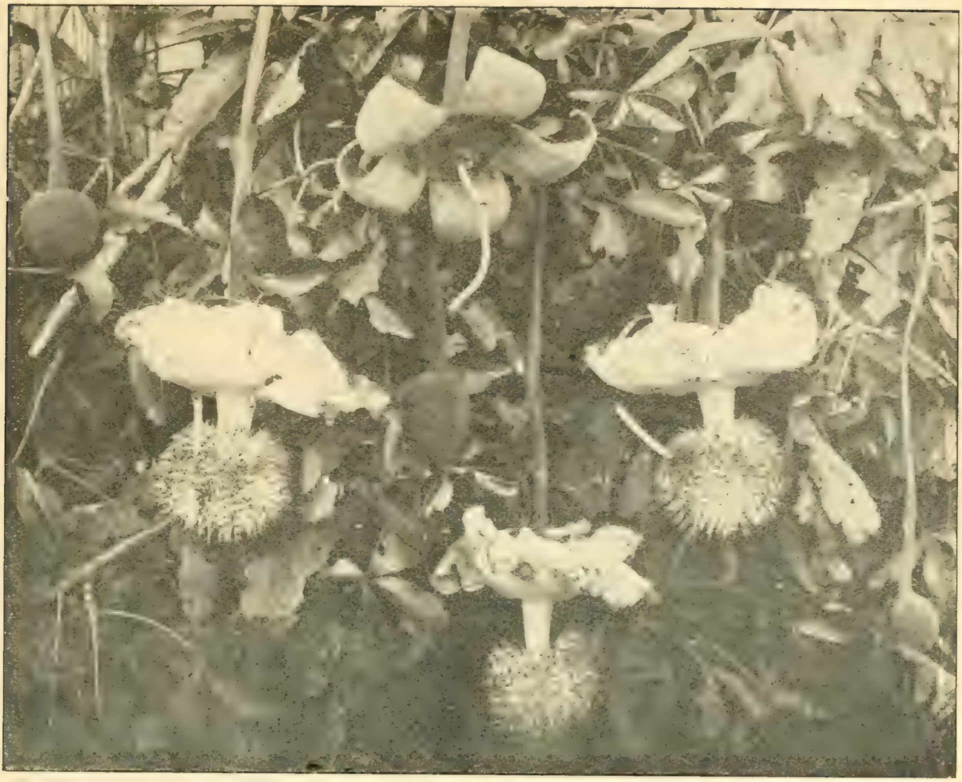

Fig. 3.—Flowers from the biggest bee-tree, any one of which will nearly fill a peck basket.

THE GOLD IN THE BEE COLONY; ONE FOR ALL, ALL FOR ONE

BY DR. BRUENNICH

The deeper we penetrate into the mysterious life of the bees, the more we find feelings and passions kindred to our own—love and hatred, delight and devotion, jealousy and wrath—yes, even kindness and avarice, and also fright, terror, and bravery. If we investigate more closely the character of the little creatures we shall conceive of the colony with its thousands of individuals as a harmonious unit. We begin to understand therein the totality of the workers, the queen, the drones (for as long a time as they exist), and the wax edifice with its dormant brood containing its treasures of pollen, and its fluid *gold*—the honey. Such a colony may reach an old age, perhaps thirty years; but its workers and drones are renewed every year, and the mother queen is replaced every three or four years by a daughter. From time to time a new colony is brought into existence by the act of swarming, when the old mother moves out, as a rule, leaving behind her a number of queen-cells in which are sleeping the future young queens.

From another point of view one may be justified in introducing a new entity—that is, the bee-state from one spring to the other, especially since all individuals except the queen are renewed and replaced by new ones from year to year.

In February, when the sun begins to draw larger circles, the quiescent bee slowly awakes to new life, and softly stirs around in the contracted cluster, in the warm center of which (the temperature curiously enough corresponding to our own blood temperature) the queen is nursed and cherished. The queen soon begins laying eggs in the cells, increasing the number of them from day to day with the growing warmth. At first the brood circles are small in diameter; but soon they increase to considerable dimensions. Three weeks after the commencement of egg-laying, the first young bees begin emerging from the cells, and, corres-

Fig. 4.—The oil palm that furnishes food and drink, also honey.

the milk (jelly) a great deal of albumen-furnishing pollen is needed, besides water and some honey.

The oldest bees undertake the dangerous task of gathering the water. This water can not be stored directly, but indirectly; a great deal of the water is deposited in the honey near the brood-nest, and last, but not least, in the very blood of the bee. If, after a long period of rainy or snowy cold weather, all the store of water is consumed, thousands of valiant workers fly out if the weather permits, and many remain on the battlefield of work, and never return to the well-loved home. Some become chilled, and others are thrown by the rough wind into the water which they are trying so vainly to take.

Other bees bring pollen from the willows, alders, and other plants, for the treasures of pollen in the combs stored by the sisters, long since

ponding to the swelling brood surfaces, they augment the number of little citizens. They are kindly accepted by their elder sisters, who clean them and give them food. This, then, is the youth of our bee-state—the time of immolating love. All effort is aimed toward warming and nourishing the little helpless babies. And those tiny larvæ, so recently from the eggs, really need a great deal of maternal care. However, their growth is extraordinary; and after nine days they build their own cocoons for sleeping during their metamorphosis, which requires twelve days. At intervals of a few hours the young nurse bees give these larvæ exquisite food which they secrete from their milk-glands situated around the cerebrum. Only by a strict admirable arrangement is made possible the enormous growth, from about 15,000 inhabitants to 70,000 and sometimes 90,000. For the preparation of

dead, begin to diminish rapidly, and the bees do not like to live from hand to mouth.

In our country, toward the end of April the love of the worker bees has a new attractive object—that is, the care of the male habitants of the hive—the drones—which are nursed with peculiar attention. As the first drone youths are hatching in their manly vigor and beauty, it is a joy for the young sisters to cherish and nourish the chivalrous knights; for at this time it is beneath the drone to seek food in the comb. Booted and spurred they stride proudly across the rows of their devoted sisters; and when they fly in search of a bride one can easily distinguish their loud bombarding tones.

This is the flowering time—the prime of life of the bees—and at such a time it is a pleasure to deal with them, for they know nothing of vigilance, hatred, jealousy, or revenge. The greed for gold is still slumbering.

The more of the liquid gold that the bees store, the more does love recede — exactly as with men. The covetous ones begin to listen to suggestions of Malthusian ideas. The brood is restrained more and more, and the number of births diminishes fearfully; and when only a little of the gold is coming in a great change takes place. The drones, once the charm of the sisters' hearts, have grown old, and the bees recognize that they are practically parasites at present, and it is no longer worth while to feed them. Almost in a night the bees have become niggardly and selfish, and their sole object in life seems to be to hold together their riches. Cruelly the little amazons push out the defenseless ones through the entrance, or they place them in the background of the hive, thus inducing starvation. Soon thousands of drone corpses cover the ground before the hive.

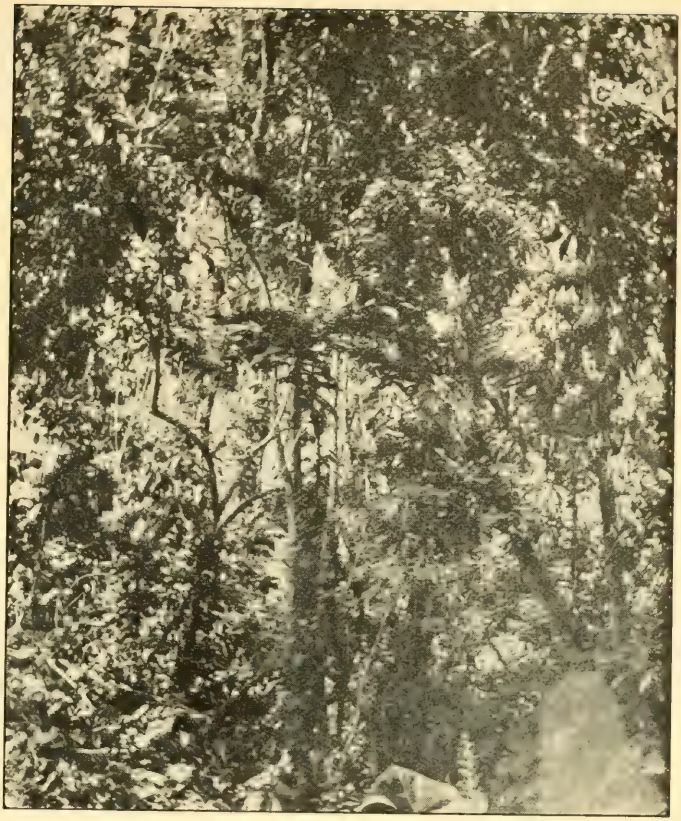

Fig. 5.—An African jungle, the home of bees, elephants, and reptiles.

At such a time it is not pleasant to deal with the resentful bees. They watch the entrance suspiciously, and woe to the strange bee which they surprise on the alighting-board. Two or three rush upon it, dragging it by the wings and legs, and try to kill it. A bee which has stung another bee seldom loses its weapon, as the barbs are not caught in the smooth edges of the wound made in the stiff chitinous harness.

In this country, in July the honey-flow may again reappear with a consequent revival of enthusiasm on the part of the colony getting old. For a short time the bees nurse the brood with more love than before; but all the brightness of youth has disappeared, and there remains only the suspicion and the greed for more gold. In the last days of summer the bees prepare themselves for another winter's sleep by pitching all the cracks of their home with propolis. They have filled their storerooms with gold, and occasionally a bee is seen flying out to get more pollen from a retarded flower. Finally the bees again go to sleep, sometimes for months, and the life in the hive pulses but faintly. Quietly the bees cluster around their queen, taking as little of their stored treasure as possible, and distributing it to their sisters. The food is thus transformed into the necessary warmth to preserve the inhabitants from chilling. The honey is more valuable to the bees than gold is to mankind, for the honey not only heats the bee-home by its slow combustion in winter and spring, but it gives vigor to the muscles, and enables those active little pets to do their stupendous work in and out of the hive. The honey is an important component of the food of the young generation, and the very wax palace in which the bees live is nothing but transformed honey—transformed in the body of the bee by certain glands. It is, therefore, no wonder that the bees set a high value upon their treasures of gold, and watch them suspiciously. There are a few poor creatures that, for one reason or another,

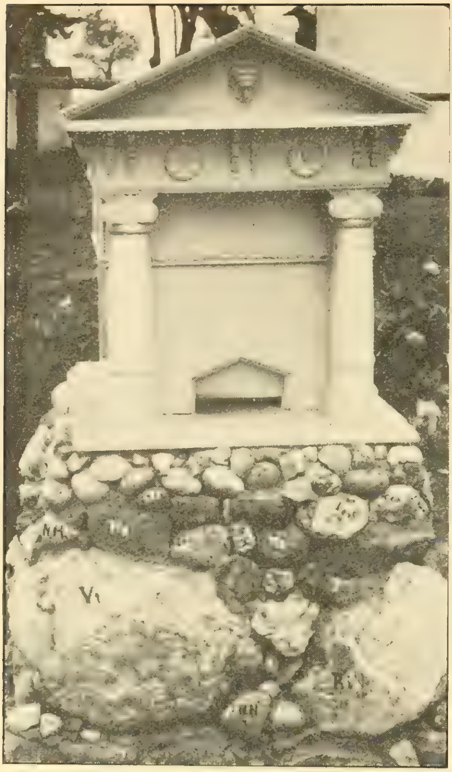

FIG. 6.—Mr. Lewis' ornamental hive. The foundation stones came from all over the world.

have almost no stores. Perhaps their mother queen was old, and unable to perform her duties as she should have done, and the bees failed to replace her at the right time. Or on the other hand, perhaps the colony was a strong breeder, and all available cells were filled with brood, so that most of the surplus honey was consumed for the purpose of feeding this brood. Or, again, perhaps the bees were short-lived or not diligent, etc.

Then there are great capitalists among the bees whose storerooms are filled with plenty of honey. Each cell is carefully closed with a cover of wax, and only a small number remain open for daily use. These bees go with only the greatest reluctance to open their trunks of gold—like the miser who turns the dollar in his hand, taking sorrowful leave of it when it goes. But pitiless man demands of these devoted workers a part of their treasure, for well he knows, too, the noble virtues of the fluid gold of the hive.

How much the love of gold, especially in late summer, domineers the character of the bees, and even misguides them, is shown by the following: If we disturb a hive by opening it or by knocking on the side of it, the bees whose honey-sacs are empty hasten to the open cells for filling these honey-sacs, for these latter are the purses of the bees. The bees do not know what the trouble is; but in any event a full purse is a good thing, for if by some unfortunate chance a bee loses its home, and is obliged to go begging a place in another hive, it succeeds by the help of its full purse. The first guard it meets asks its tribute of a minute drop, and this satisfies the rough officer.

The bees, when preparing themselves for swarming, never fail to fill their pockets with the gold of the hives. If one drops a little honey on the alighting-board the vigilant insects gather around, greedily taking it up, and they forget to hear or to see. In this condition they do not resent an intrusion in front of the hive, as they might under normal circumstances.

Under these conditions the curse of the gold appears in an ugly form in what are called robber bees. As a rule these are old bees from a neighboring hive, which had discovered that gold obtained by stealing is more convenient and more quickly secured than by honest work in the field. Well aware of their shameful trade they fly cautiously and cunningly around the entrance of the hive they intend to rob. Watching carefully while they keep coming nearer, they fly back in an instant if a guard in a menacing manner demands the password. Immediately it comes back again, searching for an unguarded place. If it ventures to enter it may be grasped by one of the guards; but as soon as it escapes it begins anew its shameless game. After some more fruitless attempts the robber may try another hive in the same manner. If the guards here do not watch carefully it succeeds in gaining a sly entrance, and then proceeds to the first open cell and fills its honey-sac to overflowing. More than half its own weight such a robber may take away. In this connection it has been interesting to me to observe that, the shorter the distance the robber has to fly to its own hive, the more honey it will carry. If it comes from a distant hive it may take only half a load. The escape from the hive is generally easy because the guards pay more attention to bees that are entering than they do to those that are going away. Therefore, as quickly as the heavy burden allows, the robber goes to its own hive, where it discharges its stolen load.

If one bee succeeds in its attempt at robbing, others of the same hive are excited to the point of taking a similar risk, and at once go to the hive which is not guarded as carefully as it should be. More and more of the insolent bees come around the entrance. The longer they keep at it the bolder they become, and soon it is impossible for the guards to make any resistance. Here and there, it is true, we may observe an isolated duel on the alighting-board, but soon complete demoralization ensues among both robber and robbed bees. The first spare nothing. In their fury they demolish even the wax cells, and tear the brood out of the cells, and sometimes kill the queen. The robbed bees have lost their senses, and in a kind of stupor they fill themselves with honey and look on, perfectly helpless, in the wild jumble.

Almost more perfidious are the *highwaymen* which may be seen occasionally when the honey-flow is poor. The honey-loaded workers come wearily homeward, many being obliged to rest on the wall of the hive or on the alighting-board, for their last force is spent because of the long distance they have had to fly. At such a time one of these watchful brigands throws itself on the worn-out bee, settling itself on the back or the side of the tired bee, for, to come honestly in front, the rascal does not venture. There it helps itself sumptuously to the gold; and the poor exhausted gatherer, knowing nothing better to do, gives of its honey. Like diligent worker bees flying from flower to flower, these highwaymen rush from one to another of these resting bees, sometimes four or five assaulting a single worker. This profession seems to be profitable, for these robbers quickly obtain purses well filled with gold.

The bee-state is certainly an ideal community. The maxim, “ One for all, all for one,” is carried through to the end. Each member acts for the welfare of the whole, whatever that may be, without reflecting on its own individual sacrifice, especially if it sees the colony in danger. At first sight one might say that the bees are without vices, but we have shown that there is a big vice, *the greed for gold,* which is able to corrupt the good—yes, even lead them to crime—exactly as the same vice does in the case of mankind.

Zug, Switzerland.

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A NOTE FROM OKLAHOMA

BY N. FRED GARDINER

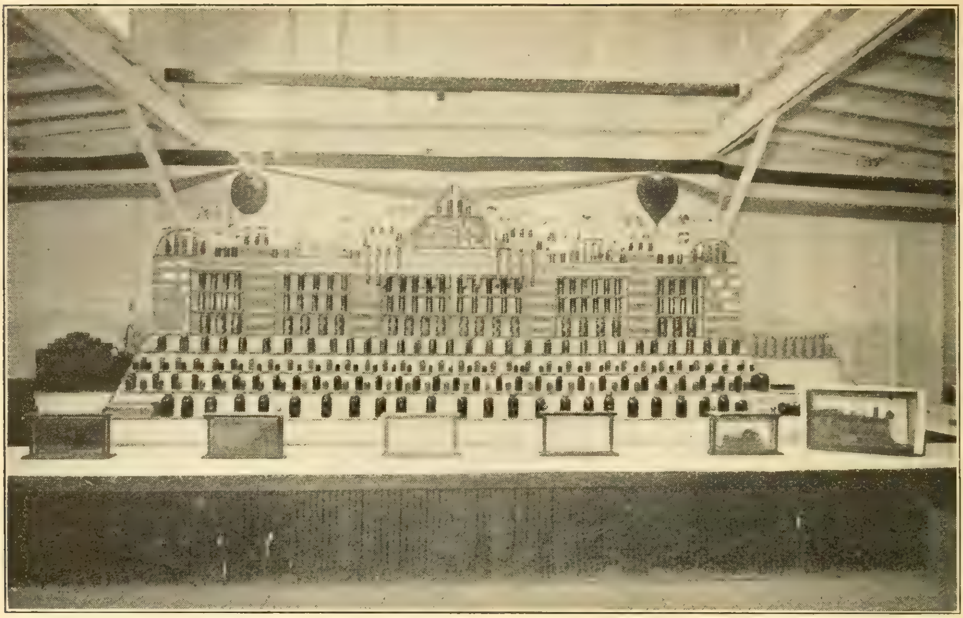
The photograph submitted with this article is that of the honey and wax exhibit of B. F. Bartholomew and family at the 1913 State Fair. This is one of the five individual exhibits made at this fair, the premiums being closely divided between this one and Garee & Garee. W. H. Hobson and J. H. Burrage had creditable displays.

As the product of this display of Mr. Bartholomew was all “ home grown,” and only a continuation of what he has done for years, it indicates what may be done repeatedly in good locations in Oklahoma by one who knows how. Mr. Bartholomew has such a location, and can be depended on to be on hand with an attractive display of honey each season. His wife puts on the finish with the decorations in wax.

On the extreme right of the photo can be seen the model in beeswax of a locomotive protected by a glass case. This was the clever work of Master Earl Bartholomew. Plans have been started to provide a special department for the boys and girls for another season. We have in this State, under the Agricultural and Mechanical College, what is known as the “ Extension Department.” In this department the boys and girls are organized for club work, and some wonderful results have already been obtained by the boys in growing corn, cotton, kaffir, and other crops, and by the girls in canning and preserving fruits and vegetables.

Upon the suggestion of Prof. C. E. Sanborn, the entomologist and beekeeper at the college, the idea of including beekeeping in the work of this Extension Department is being developed. It is hoped that, by the time of the next fair, a special department will be provided in the apiary building for the boys and girls to display the results of their work and study with bees. Suitable prizes will be offered, and the young folks should begin to plan early to enter the contest. Announcements will be made later as the plans are perfected, through the college press, GLEANINGS, and the farm papers of the State.

On one evening during the fair a meeting of beekeepers is always held. The fair managers have always been liberal in providing seats and lights, and the meeting is held in the building where these exhibits are displayed, which helps to provide inspiration. If in the future we can have a



Bartholomew's honey exhibit at the 1913 Oklahoma State Fair.

good attendance of these boys and girls it will be doubly interesting.

The annual meeting is held each January at the A. and M. College, Stillwater, Okla., during the "Farmers' Short Course."

The authorities of this college are recognizing the importance of beekeeping, and are lending much encouragement to its extension. Those interested in beekeeping in Oklahoma should make it a point to attend one of these meetings of the Oklahoma Beekeepers' Association, and both of them if possible. They owe this much to those who are keeping up the work of the Association and to the new methods they may learn.

Geary, Okla.

[Prof. Sanborn and Mr. Gardiner, as we happen to know, are live wires. They are doing much to advance the cause of beekeeping in Oklahoma, not only to make better beekeepers, but to eliminate bee disease. The beekeepers of the State should make an effort to attend the State beekeepers' convention, especially if they wish to keep disease out of the State.—Ed.]

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REPORT OF THE PENNSYLVANIA STATE CONVENTION

BY H. C. KLINGER, SEC.

The Pennsylvania State Beekeepers held their tenth annual meeting in the State Capitol, Harrisburg, Feb. 20, 21. It was a very lively meeting, and, from the point of enthusiasm, perhaps the best ever held.

Dr. H. A. Surface, State Zoologist, who is the President, was in charge of the meeting. The address of welcome was given by Hon. N. B. Critchfield, Secretary of Agriculture of Pennsylvania.

The subject of comb and extracted honey in the same apiary was discussed by H. P. Faucett. He runs his yard for both kinds of honey, and says that colonies that sometimes can not be coaxexd into section supers will work in extracting-frames.

F. G. Fox spoke on 500 per cent increase and a crop of honey. He demonstrated how it is possible, with natural swarming, to take the parent colony after the swarm has issued, and divide it into nuclei and build these up into full colonies.

The foul-brood inspectors, Geo. H. Rea and J. O. Buseman, made their reports on inspection. These were quite interesting in facts, and exceedingly amusing in the experiences the inspectors had with the different kinds of people they met in their rounds. Inspection is doing a great work for beekeeping interests, simply by the contact of the inspector and the education that is spread over the State in this way. Bees are yet kept in all sorts of ways—logs, bee-gums, straw skeps, soap-boxes, and some have even been found in beer-kegs.

The Coons hive and comb honey was a demonstration made by R. L. and A. N. Coons, of Coudersport. This is a shallow-chamber hive of their own make with which they have been very successful. This year's crop was 28,000 pounds of section honey from 400 colonies. These beekeepers (father and son) are the largest producers in the State.

Dr. E. F. Phillips, of the University of Philadelphia, who was on his way back from the National convention at St. Louis, and who was the delegate of Pennslyvania to the convention, gave an address on two essentials in honey production. He laid emphasis on having the bees go into winter quarters strong and with plenty of stores so as to have plenty of bees early enough to get the honey-flow when it comes. A large number of us have plenty of bees when the main flow is over and when the bees are not needed.

F. J. Stritmatter spoke on house apiaries. This subject aroused considerable interest, as it is quite novel to Pennsylvania people. One of his buildings is three-story, 20 x 30 ft. This contains 86 colonies in hives built solid to the floor of the room. His experience tells him that he has solved, to a great extent, the wintering and the swarming problems by means of the house apiary.

"Soil Fertility and Honey Production" was the subject of the president's annual address. Dr. Surface told the beekeepers to increase the fertility of their soil by sowing the legumes—clover, alfalfa, vetches, etc., and by so doing reap another crop, that of the sweet nectar which these secrete.

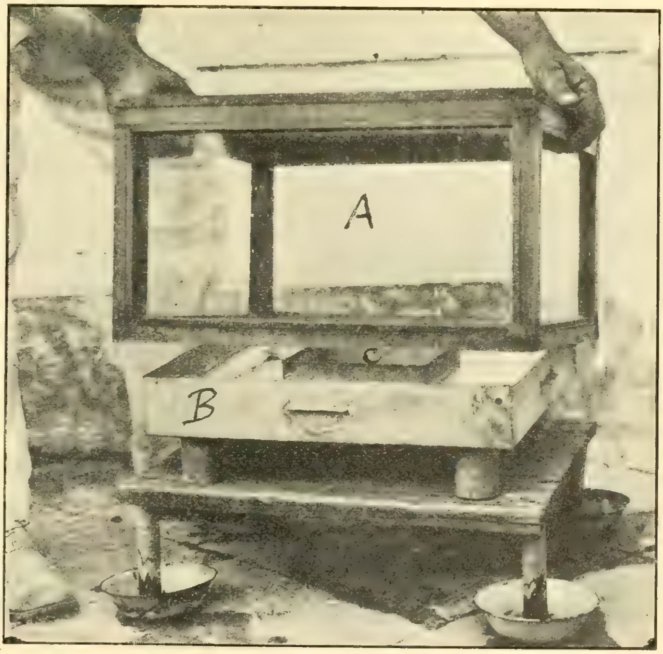
Dr. H. A. Surface, Harrisburg, was reelected President; H. C. Klinger, Liverpool, Secretary; Hon. E. A. Weimer, Lebanon, First Vice-president; Mrs. Dr. L. M. Weaver, Philadelphia, Second Vice-president; R. L. Coons, Coudersport, Third Vice-president.

Liverpool, Pa.

ENEMIES OF BEES IN CYPRUS; A CLEVER SCHEME FOR CATCHING THEM

BY M. Y. DERVISHIAN

The principal enemy of the honey-bee in this island is a large red and yellow banded hornet. These hornets increase in August, September, and October. They weaken strong colonies of bees to a great extent and extinguish weak stocks by capturing a large number of bees from the entrances. They hover about the entrances; and if they do not find guardian bees there they go into the hives and destroy the bees and carry the honey to their nests. To prevent this, about a thousand or two thousand bees guard the entrances and often assault and ball the hornets. The damage done to the bees, grapes, figs, and other sweet fruits is considerable. Their nests are found in the ground in the fields and in the cracks and hollows of walls. These hornets prosper in this country because it does not rain from April to Sep-



A device for catching hornets that kill bees.

tember, and in some years it rains very little, perhaps once or twice scantily. When rain commences in October the hornets disappear, as rain destroys them. They do not keep stores in their nests, and in rainy weather they cannot fly.

For ten years I have been using the trap shown in the illustration. The top "A" is glass in a wooden frame. The lower part "B" is made entirely of galvanized sheet iron. We fill this with soapsuds about ¾ inch. The frame of the top fits over the lower part. Underneath the square opening marked "C" a piece of liver, meat, or any thing similar is used as a bait over a board resting on four legs. Under the legs of this board are put small vessels containing about ½ inch of water. This water prevents ants from going to the baits. This device is important, because if ants go to the food the hornets will not venture near it. Each trap catches about one thousand hornets a day. Honey makes the best bait. A sheet of queen-excluder or wire netting of about ¼-inch mesh should take the place of the top glass in order to let the bees out.

When a number of hornets are caught in the trap, honey-bees will not visit it. This trap has done excellent work. In three or four days all hornets were trapped and live bees saved. They enter from the bottom and rise up into the trap and fall into the soapsuds. This affects their eyes so that they can not rise up again, and in an hour's time they are drowned. Vinegar will do as well as soapsuds. Many beekeepers have copied my glass trap as a substitute for their bottle trap.

Nicosia, Island of Cyprus.

MOTT'S OFFICE AND QUEEN-BREEDING YARD

BY E. E. MOTT

Fig. 1 shows a partial view of the home apiary of 275 colonies. The honey-extracting room is the first building at the right. The second building at the right is the office, and the third at the right is the storekeeper's dwelling. One long building at the left is the warehouse and cellar that safely winters 300 colonies of bees.

Fig. 2 shows the office at north end. The bay window gives a sight of east, west, and north, while at the desk.

Glenwood, Mich.

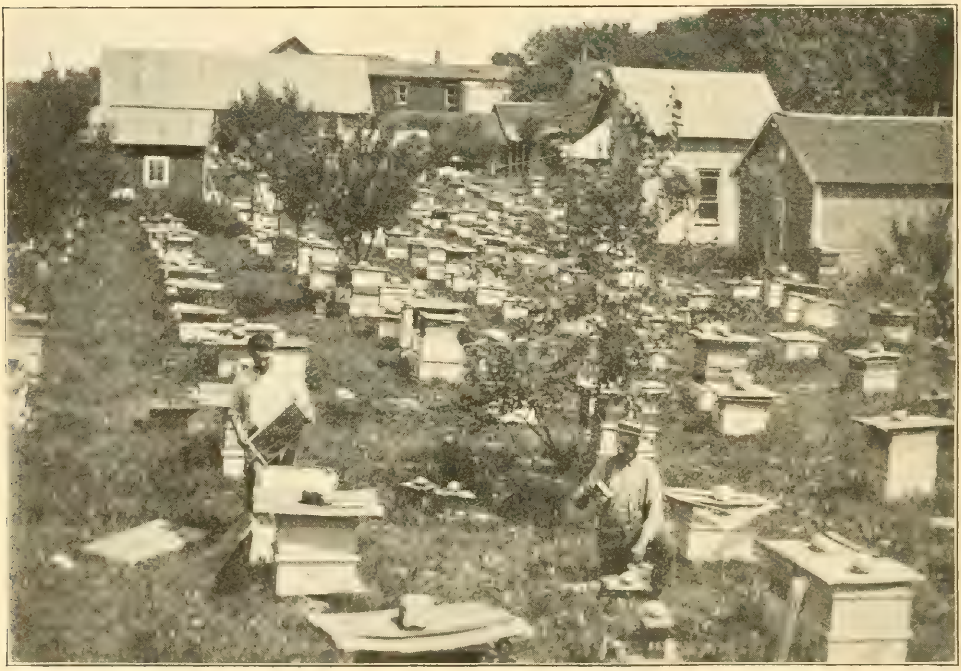


Fig. 1.—Mott's home apiary of 275 colonies and mating-yard; extracting-house and office in the right background. The mating-hives are shown scattered between the large hives.

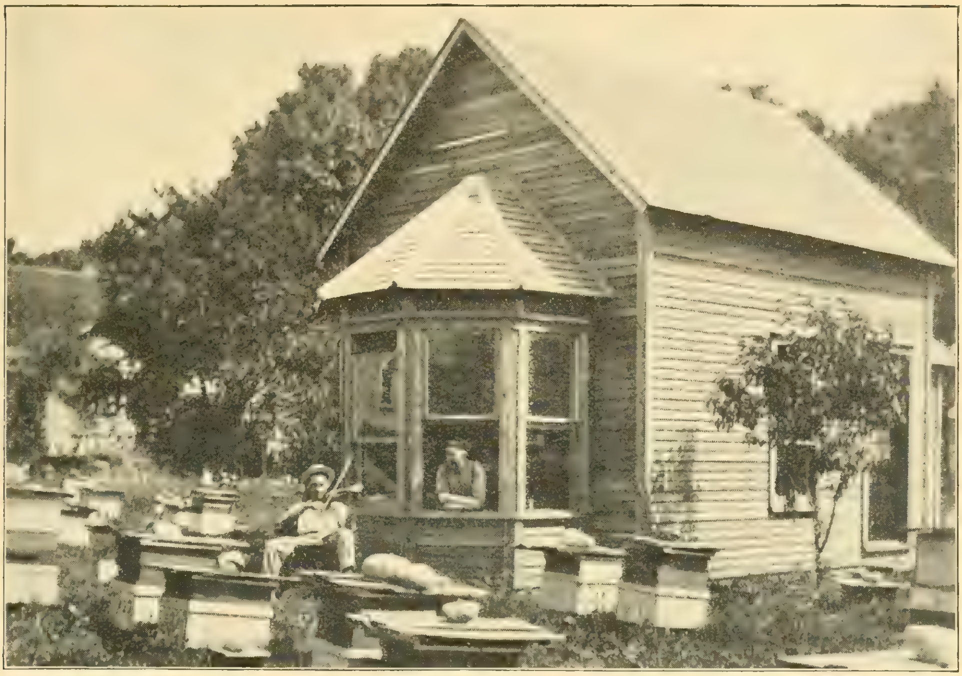


Fig. 2.—Mott's office at north end of the apiary, affording through the bay window a view of the whole yard.

NATIONAL AND STATE LAWS REGARDING NET WEIGHT ON HONEY

BY C. A. KINSEY

In a conversation with the Deputy Sealer of Weights and Measures to-day I find that he is of the opinion that the law applies to honey in sections as well as other articles of merchandise. This law will certainly give the old-fashioned $4\frac{1}{4} \times 4\frac{1}{4}$ sections the best of it over the 4 x 5 plain sections. So far as has been my experience, the $4\frac{1}{4} \times 4\frac{1}{4}$ sections always weigh more than the 4 x 5 plain, commonly used in the Danzenbaker supers. The 4 x 5 sections will seldom weigh full 16 oz., while the $4\frac{1}{4} \times 4\frac{1}{4}$ usually will weigh full 16 oz., and generally more. C. A. KINSEY.

Belgrade, Mont., Feb. 11.

[The above was referred to the proper authority at Washington, whose reply follows.—ED.]

The A. I. Root Co.:—Your letter of February 20, addressed to Dr. E. F. Phillips, Philadelphia, has been referred to this committee for reply.

For your information I enclose Circular 21, which contains the text of the Food and Drugs Act as amended. The weight and volume amendment of March 3, 1913, will be found on page 20, section 8, " in the case of food," paragraph third, together with footnote.

The regulations contemplated for the enforcement of this amendment have not as yet been approved, and when they are issued you will be sent a copy.

It would appear from the Act that all packages of food products, whether in bottles, jars, or other wrapped or closed containers, will be considered foods in package form, and required to be marked with a statement of the quantity of the contents. The law requires that this statement shall be plain and conspicuous, and also provides that tolerances and exemptions for small packages shall be established by regulation. These will undoubtedly allow for such necessary variation as occurs in weighing or measure under careful commercial conditions.

A. S. MITCHELL, Sec. to Com.

Washington, D. C., March 3.

[The weight and volume amendment, paragraph 3, with footnote, is as follows:]

Third. If in package form, the quantity of the contents be not plainly and conspicuously marked on the outside of the package in terms of weight, measure, or numerical count: *Provided, however,* That reasonable variations shall be permitted, and tolerances and also exemptions as to small packages shall be established by rules and regulations made in accordance with the provisions of section three of this Act.

The Act of March 3, 1913, provides that no penalty of fine, imprisonment, or confiscation shall be enforced for any violation of its provisions as to domestic products prepared or foreign products imported prior to eighteen months after its passage.

[In addition to what Secretary Mitchell. of the Committee, says, we may add that sections of honey are undoubtedly included under this net-weight and volume law. When a shipping-case of sections is sold the net weight of the sections of honey in the crate should show. When the sections are sold individually by carton, a close *approximate* weight of the section must show. In the proviso, paragraph 3 as quoted above, "reasonable variations" are permitted; but care must be exercised not to take too wide a "variation" or there will be trouble. We are allowed a variation, as we understand it, of one ounce on the weight of a section—that is to say, there must not be more than one ounce *below* the marked weight, although it may be any thing above. In packing our carton honey it is our practice to run from one to two ounces *above,* as honey that has been stored in a dry room for two or three months at a temperature of 70 or 80 degrees to prevent granulation will lose slightly in weight. Another thing, it is well to understand that there are State laws as well as the national. Some of the former, with reference to net weight, have been in effect for some time back; and if one does not know where his honey is to go he should be on the safe side, and that means, do not depend too much on the national law that allows of a "reasonable variation" in the weight of an individual section.

Our correspondent is mistaken in thinking that the 4¼ x 4¼ section has the advantage over the 4 x 5 because it weighs more. If the law provided that all sections should weigh a pound, then the 4¼ would have a slight advantage; but a statement in *ounces* of the weight complies equally with the law the same as when the net weight is stated in *pounds or fractions thereof.*

It will be apparent that all packages containing foods must be marked with their net weight within 18 months after March 3, 1913, which will be Sept. 3, 1914; but the wise producer or packer of food stuffs should begin (if he has not already done so months ago) marking his packages ahead of that time; and practically all of the packers in the country began marking their goods immediately after March 3, 1913. The purpose of the law was to give the sellers an opportunity to clean up and dispose of all unmarked goods before the law went into effect.—Ed.]

WHEN IS THE BEST TIME TO REQUEEN?

Nature Bred vs. Artificially Bred

BY F. GREINER

The above topic has been discussed a great many times in conventions and in the press; but the case has not yet been settled to the entire satisfaction of all. It seems to me that the question is not so much *when* we shall requeen as it is, *when can we rear the best queens?* Nature has selected the early summer, when the trees are blooming, and flows are yielding pollen and honey profusely, and has practiced the rearing of queens at this time for untold centuries. Could nature have made a mistake? I doubt it. The first symptom of a colony's broodiness is the rearing of drones, and this antedates the rearing of queens by several weeks at the least. We can hardly hope, therefore, to bring a colony into a condition, a frame of mind, by a few feeds to do its best at queen-rearing. The slow and long-continued spring honey-flow and pollen yield can not be equaled by artificial feeding. Most noted authorities of Switzerland and Germany are of this opinion, and advise rearing queens during the time when bees usually swarm. It may be more cheaply done at the close of the season, and some of our American beekeepers have practiced it more or less extensively at such a season without apparent detrimental result to the vitality and utility of the stock of bees. We must not forget, however, that our bees are thoroughbred by many thousands of years' breeding by nature's methods; and the mistakes that we may make are not at once noticeable. It is with the bee as it is with man—his nature is strong enough to endure all sorts of mistakes and abuses. If it were not so, the human race would have long since died out; and the bee would have degenerated under the often irrational treatment. Fortunate for us that the honey-bee is constituted as it is! Undoubtedly we have blundered along many a time, and we are still continuing. We are transferring larvæ. We think it is all right. We are depriving a colony of all its brood in order that the bees may more lavishly feed the royal larvæ. We try to have young queens mated from baby nuclei, and we do other things out of the regular order of things. Is there any evidence that we are rearing better queens than formerly? any evidence that the race has degenerated? What do we know about it?

Our friend House advocates requeening in September or even later. I don't mean to quarrel with Mr. H., and I have no objections to any one requeening at any time when good queens may be had, and when it is proper to open hives. Personally I don't care to tear hives open in the late season. And, by the way, I have hunted out queens without removing a frame from the hives. When it may be done in this way requeening is quite practicable, even in the winter. But, generally speaking, during the summer season is the best time to handle bees; and beginners particularly will do well to bear this in mind.

Objections have been raised to early-raised queens. By "early raised queens" we understand such as have been raised during the early honey-flow from fruit-bloom. A certain per cent of our colonies will, some seasons, make preparation for swarming, and often do swarm, unless we intercede. With us this may happen about the middle of May or thereabouts. I hold that queens reared under these perfectly natural conditions are as good as any. Our friend House objects to the queens reared at this season because he has lost the majority of them while mating or attempting to, the weather usually being unfavorable—cool and rainy. I have to consider such an occurrence as very unusual. Before I had discovered that our bees, particularly those in the outyards, had to be looked after during this early period in order to avoid losses by swarming, I not unfrequently found colonies in each outyard at the close of fruit-bloom, which had cast swarms contrary to my expectations. It was usually discovered, before any queen-cells had hatched out, and my practice at such times had been to divide the parent colonies into three, four, or five nuclei. I do not remember ever missing or losing any of the young queens. On the contrary, I was enabled to build up these nuclei into prosperous colonies with the brood-combs accumulating from shaking swarm-ripe colonies, etc. I can not agree with Mr. H. that it should not be a good time in May, when there is an abundance of bloom all around, to rear good queens. I should much prefer them to those reared in August or September, after all the bloom is over and stimulating by artificial methods has to be resorted to. In buckwheat sections the swarming fever sometimes breaks out anew in the month of August. This is an indication that good queens may be reared at this time in that particular locality.

How the conditions are in southern climes. in countries where our early queens are reared, I do not know; but I guess that their March and April may correspond with our May and June, and I have suspected that the queens we purchase from the South for May delivery were reared under such natural favorable conditions as outlined at the beginning of my article.

There is at present a great call for May queens here among the honey-producers of the North. We find it a profitable investment, though the queens may cost a little more then than they will later. Even if we had requeened every last colony during the month of September and October, we would still want the queens in May, possibly even more of them on that account. It pays us to divide the extra-strong colonies, such as might be expected to cast swarms during apple-bloom, and provide each queenless half with a southern early-reared young Italian queen. Thus, instead of having one colony ready for the harvest, we may have two, and avoid natural swarming by the procedure. Southern queen-breeders ought to realize that it is a great disappointment to us when the queens ordered from them for May do not reach us till June.

Naples, N. Y.

BEES AND BULK COMB HONEY AT THE KENTUCKY STATE FAIR

BY J. P. MARTINE

Our display of bees, supplies, and honey at the Kentucky State Fair, held Sept. 15-20, 1913, attracted considerable attention. It seems as though almost every one is interested in bees.

The queens in the observation hives, and the handling of the bees in the demonstration cage, were the centers of attraction. In the demonstration cage we explained fully the manner in which the bees gathered and stored honey; how honey is taken from the bees by means of bee-escapes; how the cappings are removed, and the manner in which the honey is extracted. We also, while in the cage, gave talks on the subject of bees, explaining the part that the queen, drones, baby, and worker bees take in carrying on the different functions of the hive.

During these talks and demonstrations we never failed to have a large and appreciative crowd.

We did not make a large honey display,

J.P.MARTINE,
BEES, SUPPLIES & HONEY
BEE KEEPERS SUPPLIES

J. P. Martine's exhibit at the Kentucky State Fair September 15-20, 1913.

as our object was to advertise the manner in which we put up our comb honey—that is, we cut the comb from the frames in strips about one inch in width and five inches in length, placing the same in wide-mouth white-glass jars having perpendicular sides so the cappings are shown to advantage, and filling in the space with extracted honey. This was favorably commented upon by a great many, and we sold quite a number of jars at 75 cts. each.

We have been putting up our comb honey in this shape for the last three years, and have never failed to dispose of all we could produce at 75 cts. a jar. We have been offered 65 cents per jar by the gross.

Louisville, Ky.

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THE SMOKE METHOD OF INTRODUCING SUCCESSFUL FOR NEARLY THIRTY YEARS

BY MAJOR SHALLARD.

Please credit the discovery of smoke introduction of queens to me, Mr. Editor, unless some one has a claim prior to 1885. I started to introduce queens by the smoke method at that date, and have continued ever since. My method has been to remove the old queen, and to give the new one at once, to close the hive, and then use smoke. I can hardly recall a failure. I have removed an old queen, and have given a virgin at once. I have even removed an old queen, and given a cell immediately, without any protector. In fact, one can do almost any thing with bees if they become demoralized and all have the same smoke odor.

My wife took over my queen-rearing business for one season, 24 years ago, because I had too many irons in the fire, and some were getting burnt. She also ran the home farm of 250 colonies for honey. I may mention that she is an expert beekeeper. She introduced all the queens that year with smoke. She introduced virgins into the nuclei, and had very few if any failures. She took nine tons of honey that year with the help of two girls, and her experience with swarms was somewhat unique.

The season was a great swarming one. One morning a swarm came out and settled on the trunk of a tree. Almost immediately another one came out and started for the same place; and before she had the hive ready to put them in, the second swarm started to settle with the others. She did not know what to do, and she could see another swarm issuing down among the hives. Suddenly it occurred to her to cover them up; so she put a sheet around the bees and tied it on the tree above them. The new lot settled on the sheet. The next swarm came along, so she covered up the second swarm with a chaff bag split open, and the third swarm settled on the bag. Then four more swarms issued almost at once, and they all made for the same tree. She divided the swarms as well as possible with the sheets, table-cloths, etc., and when the swarms stopped issuing she had nine on that tree, and all separate. Soon they were all hived satisfactorily.

On another occasion she had 15 swarms out during one morning, and seven of these in the air at once; but she managed to keep the latter apart with the spray pump.

Some time ago I wrote that a good queen would not go into the top box, and the genial Dr. C. C. Miller reckoned all queens would do so if pressed for room, to which I say amen; and some other gentleman said they would go up, but "of course I would use queen-excluders." That is just the point I was making. I want queens that do not need excluders to keep them down. The old-fashioned leather-colored Ligurian queen would stay down in the bottom box and have a nice compact brood-nest, although the hive was a four-story one, and all the top stories empty; but a badly bred queen, although she may be pure, will not do this. In times of dearth she will go upstairs and transfer her brood-nest from the bottom to the top story.

So. Woodburn, N. S. W., Australia.

THE SHAKEN-SWARM PLAN AFTER MANY YEARS' TEST

BY M. A. GILL

In that masterful work of Moses Quinby he tells how he drove swarms from old box hives for the purpose of transferring, just at the time they were preparing to swarm. The splendid results he obtained, according to his book, written over sixty years ago, induced me during my early beekeeping to try the same method; and after securing the same splendid results he describes I was led to ask, if a swarm would do so well driven from an old box just before a swarm issued, why wouldn't it do as well if shaken from a frame hive just before it was to cast a natural swarm? After trying the plan until the results proved I was doing it correctly, I have never abandoned it, nor do I think that L. Stachelhausen ever did while he lived.

I can't tell when a colony is going to swarm without some kind of examination. Of course, an experienced eye can cruise a whole apiary and give a good estimate of how many colonies are about to cast a swarm; but a thorough examination will reveal the fact; and this is quite necessary, or else the work would be as unsatisfactory as putting a boy or man to watch for swarms at an out-apiary who would allow half of them to go off while he enjoyed a nap under some inviting shade-tree. So if in doubt, an examination of from three to five combs for queen-cells is absolutely necessary if one intends to prevent natural swarming.

Modern medicine advises prevention rather than cure, and thus all the little kinks should be and can be used during the swarming season to prevent it. But after a colony shows a second inclination after being once thwarted, it is wise to shake it, for any further meddling will result in loafing or the raising of a new queen.

The idea that the season's results from a shaken swarm are not as good as from a natural one is erroneous; for when the brood is carried to a new stand, as it always should be, the new colony receives all the flying bees, and in many cases the combs are shaken clean, as the brood is needed for weaker colonies. I can not imagine why any apiarist should prefer to wait a few hours, or perhaps a few days, to allow a colony to cast a natural swarm that might cluster where he has to shin up a tree, when he can make just as good a swarm in from five to fifteen minutes, and the work is a pleasure.

Three people can handle from one thousand to twelve hundred colonies in out-apiaries. Of course, it is needless to say that this can not be done without a month of almost slavish work. But three can not attend to that many comb-honey colonies scattered over the territory they would require if allowed to swarm naturally.

The whole fraternity has been seeking for years for a race of bees, or a particular hive or some system of management, that will eliminate swarming when working for comb honey, and about so often some few declare themselves "progressives," and will fly to the journals that they have "the hive" or "the race," and that the time has come when all progressive apiarists should handle hives instead of combs; and then the first season something out of the ordinary happens, and all their hopes are shattered. In my opinion the way to do is to reduce swarming to the minimum by all the known methods, and then handle the minimum by the shaken-swarm plan when working out-apiaries for comb honey.

It seems to me that so much has been written upon the mode of procedure during the past ten years that the details are unnecessary. Some complain of absconding. This will often happen if the operator fails to give a frame of brood or shakes the swarm into a hot hive and then leaves the hive out in the hot sun. Temporary shade, at least, should be provided at such times. During the past season we shook 300 swarms, and I do not recall that a single one absconded. Any one who thinks this system will propagate a swarming race can replace the swarm-cells with cells raised from their non-swarming colonies. From four to five visits every seven days will practically cover the swarming season.

Hyrum, Utah.

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THE LET-ALONE HIVE; THE "LONG-IDEA" AGAIN

Producing Wax and Honey

BY A. W. YATES

It is quite natural to assume that out-apiaries are those operated by persons who are in the business for the dollars and cents there are in it, or who take as much from their bees as they can with as little outlay as possible. One motto of the late E. L. Pratt was, "Make your bees pay their way and a little more." Beekeeping as a hobby and beekeeping as a business are two different propositions. If we are in it for business we must make them pay their way and a little more or we shall soon go under.

The great drawback in the maintenance of outyards is the disposition of the bees to swarm. If this could be done away with, and the mass of bees held together, all other difficulties could be overcome. The modern hive as it is constructed to-day was never built with this thought in view; and if such hives are used for this purpose they require constant attention, and at times are the source of a good deal of annoyance. If at the same time some one bobs up with something new in a hive our manufacturers are skeptical, and very apt to look aghast at it unless it presents something very striking in its favor.

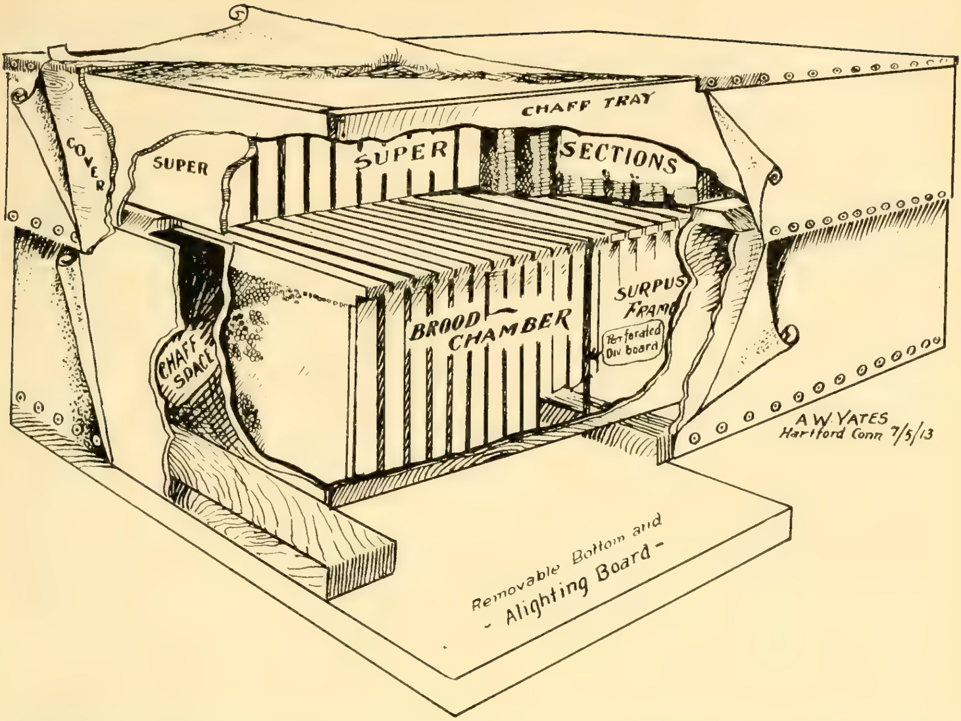
It has been said that "Bees, when given plenty of room, will spend less of their energy in swarming and more to the production of honey."

A few years ago I constructed several large hives holding 25 frames each. These hives came so near filling the bill that I made more, and am using one of similar construction altogether at present.

It will be seen by a glance at the illustration that this is a double-walled hive; and, being covered with a good quality of roofing paper, it is both warm and dry, and at the same requires no paint nor even lumber of first quality in its construction. Living near a city I am usually able to obtain shipping-cases at the hat-stores for about ten cents each, one of which contains nearly enough lumber to build the body of a hive. The hive I shall describe is intended for the "L" frame; but it can be used with other styles of frames.

The side boards are 39 x 9½ inches, four for each hive, nailed together in pairs, as in A in diagram. The inside board of the front end is 18¼ x 9½ inches, while the outside board is six inches longer, and nailed together, as in B, so as to lap by and form the corner, as in C. The opposite end of the hive, being used only in summer, is of single thickness, as is also the bottom of the surplus compartment. When the hive is nailed together the walls are packed with planer shavings or chaff. A narrow board, E, is nailed on the upper wall edge to hold the shavings in place. The eight-inch telescope cover gives plenty of room for a chaff tray for winter, or two supers side by side in summer.

This hive, when so constructed, will hold 25 frames, ten of which answer for the brood-chamber, and are separated from the others by a perforated division-board, D, reaching within half an inch of the bottom of the hive. A narrow strip of tin bent at an angle of about 45 degrees is fastened to the bottom edge of it, and this is placed in


CHAFF TRAY
COVER
SUPER
SUPER
SECTIONS
CHAFF SPACE
BROOD CHAMBER
SURPLUS FRAME
Perforated Div board
A W. YATES
Hartford Conn 7/5/13
Removable Bottom and
- Alighting Board -

the hive with the bent tin turned toward the brood-chamber. The object of this is to allow the bees free access from the entrance direct to rear of the hive beneath the division-board; but in case the queen should come in contact with it she will walk down until she comes to the tin, which will turn her back to the combs.

This division-board, although not designed by me, I consider an important feature of the hive. Sometimes, as in case of a virgin queen returning from her wedding-flight, or by the excessive use of smoke over the brood-chamber, a queen will find her way to the rear of the hive; but care should be taken to provide a young laying queen.

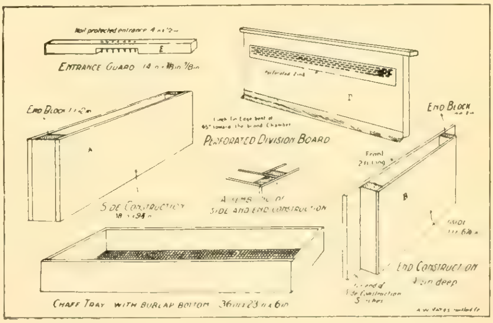
The bottom and alighting-board are removable, and the summer entrance, ⅞ x 14, or the full width of the ten frames, is closed for winter with a block, E, through which wire nails are driven ⅜ inch apart as protection from mice.

Some points in favor of this hive are simplicity and cheapness of construction; easily built by any one at all familiar with tools; no paint; provides plenty of room so that three or four visits during the season are all that is required; and the protection it affords for wintering.

It has always been an opinion of mine that bees produce wax at all times when producing honey, and that this wax, unless they have a place to use it, must necessarily go to waste; that they will produce both much faster when allowed to hang in their natural clusters. Taking advantage of this fact, only narrow starters are used in the 15 frames for surplus honey; and as these frames are all in one lower story they are accepted one at a time, and for that reason will be finished much quicker than if the bees had to go above.

These fifteen frames, holding, when completed, about 90 pounds with 64 sections in the two supers above, give the hive a capacity of about 150 pounds, or sufficient, usually, for the season in this section.

The season's work is commenced during April. The chaff trays are removed, the chaff division-boards that are used during


Nail protected entrance
E
ENTRANCE GUARD
Perforated Zinc
F
PERFORATED DIVISION BOARD
END BLOCK
A
SIDE CONSTRUCTION
SIDE AND END CONSTRUCTION
END BLOCK
Front
B
Side
END CONSTRUCTION
in deep
End of Side Construction
CHAFF TRAY WITH BURLAP BOTTOM 36 in x 23 in x 6 in
A. W. Yates

winter are exchanged for the perforated zinc ones, and, after examining the colonies for queens, etc., the frames and supers are put in place and need not be looked at again during the season, although I try to see them two or three times.

When the honey is harvested, large covered cans are taken to the outyards, the surplus frames are removed from the hives, and held toward the light to see where the light and dark honey lie; the light honey is cut out into one can, and the dark into another. In this way we are able to grade it—something we are unable to do in extracting. It is taken home to be separated from the comb, which is accomplished by means of strainers. A table is used for this purpose having a top made of galvanized-wire screen, three mesh to the inch. A cheese-cloth strainer is made to hang below to catch the particles that pass through the wire screen. An uncapping-can may be used for small quantities.

When every thing is in readiness the chunks of honey in the cans are all mashed fine and poured on top of the wire-top table to drain. The table should be elevated above the storage tank so that the honey will flow into it without extra handling.

It will be noticed by the foregoing that no extractor or expensive extracting oufit is required. The crop can be handled leisurely, and at a time when the weather is more agreeable than it is sometimes when extracting. Results can be obtained with much less labor, time, and expense. Colonies are less stirred up and excited from giving up their stores. We are able to produce fully as much choice honey, I think, as by any other method, and a good many pounds of the very finest virgin wax, which of itself is no small item.

Hartford, Ct.

[A number of beekeepers in New England, particularly Mr. Allan Latham, Norwichtown, Ct., and Mr. Yates, have been working on this let-alone principle of keeping bees—that is to say, they have been experimenting with large hives (or Long Idea hives)—so large, indeed, that they have sufficient capacity to carry a whole season's crop with little or no manipulation on the part of the beekeeper. A year ago last summer, when attending a convention of beekeepers at Amherst, Mass., we listened to an address by Mr. Yates which he delivered on this subject before the convention. At that time we requested him to prepare an article, with illustrations, showing his system of management, and the foregoing is the result.

Mr. O. O. Poppleton, of Stuart, Fla., has long advocated the use of a 24-frame or Long Idea hive having a capacity similiar to the one here shown. Many years ago he used a 24-frame double-walled hive in Iowa. He liked it so well that when he went south he continued to use the same hive, but, of course, without the double walls. We will have an illustrated article showing Poppleton's entire system, which he was using till within a year ago. That there are advantages in the system cannot be denied. Whether the disadvantages for the average beekeeper will outweigh the advantages we will not attempt to say; but it is a system that the average reader can afford to look into with an open mind. A little later on we shall show another system somewhat similar, and yet very different, by J. E. Hand. This is a 16-frame hive capable of vertical expansion. More anon.—Ed.]

Conversations with Doolittle

Continued from page 369

up to a condition where no desire to swarm has become manifest; and those that have become "broody" are allowed no comb of brood, but several thousand empty cells at the time of shaking. In the mean time the super of sections right above the combs they are shaken on has from four to twelve sections full of drawn comb left over from the previous season. In this way the colony which has not become broody at time of shaking keeps right on with feeding the queen, removes the honey in the brood-combs to the sections, and the queen deposits eggs without interruption. On the other hand, the bees and queen from a broody colony find their "house all swept and garnished," with no incentive but to go right to work as any good swarm should when coming in possession of a new home. The condition and tendency in both cases is to rear brood in the brood-chamber and store honey in the supers to the best possible advantage.

Spacing Danzenbaker Frames Wider Apart in Extracting Supers

I have found the most effective method for spacing Danzenbaker frames for extracting to be to remove the supporting rivets and replace them about two inches nearer the top-bar. This can be done without mutilating the comb badly. The end-cleats of the hive must then be raised to a corresponding level, and the frame will hang perpendicular by its own weight, just as do the shallow Danzenbaker extracting-frames. As one seldom wants to reverse the frames, this position for the rivet is as good as the center.

Stouffville, Ont. F. L. Pollock.

Heads of Grain from Different Fields

Too Much Honey in the Brood-nest for Satisfactory Breeding

We have a yard of 108 colonies in which the bees are very strong for this time of the year, having at this writing an average of four frames of brood; in fact, they have almost every empty cell filled with brood. The other four combs are solid with honey to the bottom-bars. There is, of course, some honey in the frames having brood. In this locality the fruit bloom is on about May 5 to 10, to be followed immediately by locust, then clover and sumac, with practically no playspell between. Now, in your judgment which would be the best—to extract about two combs or put on supers early and have them carry up the honey in order to give the queen room for laying? We run this yard for comb honey. Do you think the queen should have six combs for brood two weeks before fruit-bloom? Last fall these bees had every frame solid with honey to bottom-bars with an exception in most cases of a small nest extending about three inches from the bottom-bar in two combs. They wintered finely.

Conneaut Lake, Pa., April 8. R. A. Nusbaum.

[We are a little in doubt as to what kind of answer to give. As a general proposition, plenty of honey in the brood-nest, where there are at least six frames of brood is a pretty good asset. In the two weeks intervening, considerable of this extra honey will be consumed in brood-rearing providing there is no source of nectar at the time. That being the case, we would not advise disturbing the brood-nest You have an almost ideal condition.

You might try taking away two combs of stores from a few colonies, but we would not extract, because you may desire to give them back to the bees later on, and there is nothing like combs of honey for brood-rearing. Of course, the two combs removed should be replaced by empty combs in which the queens could lay.

It is very doubtful if the bees would carry the honey up into the supers. although they might do so —Ed.]

Plan for Requeening

Referring to the article, page 234, in the March 15th issue, "To make increase and prevent swarming," I should like to inquire how it would do to place the old queen above with a queen-excluder between the brood-chambers, with only one frame of eggs below. The excluder would prevent the old queen from coming out with a swarm. When the young queen below would begin laying, the old queen could be destroyed. Would not this be a good way to requeen each year and prevent swarming?

Gardner B. Willis

Providence, R. I., March 20.

[We can see no good reason why you should not be able to requeen your bees successfully by the method which you describe, providing the colony is very strong and honey is coming in every day Without these conditions the lower story might not start cells. However, in case the honey-flow should be cut short before the young queens hatch, you might awake some morning to find them all destroyed.—Ed.]

A Swarm that Stored More Honey than old Colonies

I have some strong colonies that make but little honey. Last year we caught a swarm on May 1 as it came over our farm. It filled its hive and two full supers and part of another. My old colonies. apparently as strong, filled only one super with honey, and two did not make any surplus, though strong, These were very cross. In the fall we could detect a sour smell about the hive. Can you tell me what to do? Do I need new queens?

Roxbury, Ohio, April 7. G. E. Morris

[For some reason a swarm, as a rule, works with a vim not known to the colony which does not swarm. This will partly account for the fact that your newly hived swarm produced more honey than your old colonies. They should have produced some honey; and since some of them did not, it would appear that there must be something wrong. Some colonies of bees, although strong, never do much in the supers, and in such cases it is wise to requeen.

It may be that the queens are old; and while your colonies were apparently strong, yet the failure of the queens to keep the brood-nest filled with eggs and young brood would allow the bees to store the honey there instead of in the supers. Requeening would be the remedy for that also. Since you detected a sour odor in the fall we would advise you to look sharp for European foul brood, although this odor may have come from a honey-flow from fall asters or goldenrod.—Ed.]

More about that Peculiar Disease

The editor asked for information, pages 547, 548. Aug. 1, 1913, regarding a peculiar disease appearing in Colorado and California. We have the same trouble around here. It starts about the last of June or first of July, and lasts six or seven weeks. I first noticed it three years ago. I thought the bees were robbing. The front of the hive would be covered with bees, and the ground alive with crawling bees too weak to fly. Each hive seemed to be killing its own bees. They kept at it till all or almost all the old bees were killed. The combs were well filled with brood of all ages. There was no honey coming in at the time, and the strongest would rob out some of the weakest.

Napa, Cal., Feb. 19. W. E. Griffin.

Satisfactory Experience with Light Brood Foundation in Sections

Referring to Geo. T. Whitten's article, Feb. 15 page 139, I have had three years' experience with light-brood foundation in sections. My bees work this more readily, and have very much increased my honey crop since using this foundation. I can also do a faster and better job by putting it in the sections. I have tested the honey by cutting out the partly filled sections, and I find the midrib at the top slightly heavier than in sections. Where I used super foundation, especially next to the wood, when cut ⅛ inch below, I can tell no difference. I have asked my customers if they have any complaint about the midrib, but none have had any so far.

Ceres, Va., Feb. 25. F. A. Crabtree.

A Note of Appreciation from a Back-yarder

I have, for several years, been a subscriber to your paper, and have always read it with considerable interest, but never before have I felt it my duty to make any special comment on it. However, I feel quite confident that the last issue, that of April 1, is by all odds the most valuable and interesting to beekeepers of any periodical I have ever read on the subject of beekeping. I enjoy very much the experiences of those old tried beekeepers, and their explanations are of such a character that almost any person, though quite young in the beekeeping game, could surely understand them.

I am what is commonly called by the big men in the game one of those back-yarders; that is, I have what I think is the nicest little apiary of its size, from every standpoint, located in Nebraska. I have seventy colonies of bees, all in up-to-date ten-frame hives, placed in pairs on cement foundations, and all the necessary apparatus for working them. I have been in the business nine years, and have made a success of it every summer. I made one bad winter failure when I commenced cellar wintering. The first season I prepared my cellar in accordance with the instructions of several men who had practiced cellar wintering. I put in thirty colonies of bees, and took out seven living in the spring. Since that time I have used some methods of my own for forced ventilation, and have never lost a colony of bees that could have endured one month of cold weather out of doors. Last season I commenced with forty-two colonies; increased to seventy, and netted myself $900.

I have noticed in Gleanings quite a number of arguments from beekeepers for and against cellar wintering. I am quite confident that in this locality cellar wintering is by all odds the better. The saving in honey would amply pay for the construction of the cellar. I wintered my bees in 1912 on an average of 8 lbs. and 2 ounces of honey per colony, weighing them in and out.

Omaha, Neb., April 14. H. C. Cook.

Some Interesting Questions

1. Where "shook" swarming is practiced, how soon can the two colonies be united without danger of swarming?

2. Will queen-cells in an upper story with wire cloth between the two stories have a tendency to induce swarming?

3. How much space can I leave between the bottom-bar of frames and the hive floor without danger of combs being built between?

4. How much space can I leave between dummies, and have no comb built between?

5. What should I do with combs that become moldy?

6. Will the steam-heated uncapping-knife work satisfactorily on combs of cold honey?

Coffeyville, Kan., April 16. Bird Hart.

[1. Your question implies that you wish to practice "shook" swarming as a method of swarm control and not for increase. The intervening time between shaking and uniting again without danger of swarming would depend considerably on the honey-flow. If uniting were done near the close of the honey-flow there would be little danger of their swarming for the rest of the season; but if honey-flows should come on later the bees would be likely to swarm.

2. In our experience we have not found that queen-cells in an upper story with wire cloth between two stories have any tendency to make the bees swarm.

3. It is generally regarded that if more than one inch of space is left between bottom-bars of frames and floor boards there is danger of combs being built in the space. However, some beekeepers report leaving much more space than that, without that trouble.

4. That depends on how much the bees are crowded during a honey-flow. Three-eighths to one-half inch is about right.

5. A hive containing moldy combs may be set under a very strong colony where the combs will be cared for and cleaned up; or one or two moldy combs may be placed at a time in the brood-nest of a strong colony.

6. On combs containing cold honey is just the place where the steam-heated uncapping-knife will do the most satisfactory work. It is hard to keep an unheated knife from gumming on such combs.—Ed.]

Getting Wild Bees out of Caves in the Rocks in Nevada, etc.

I am very busy at present, nailing up and getting ready for increase of my bees. They have been building up fast since the 8th on buckbrush.

I started in three years ago with Gleanings and the A B C of Bee Culture, knowing practically nothing about bees. I took them out of buildings and cavities in the rocks, and used good queens. I had 21 swarms a year ago, and increased them to 43 last season and got 2300 lbs. of surplus honey from them—half fancy comb, half extracted, and captured 27 more swarms, so I am starting this season with 70. So you see bees "go some" in Nevada, even if it is classed as a desert, in the East.

Mason, Nev., March 20. A. J. Tedder

A Queen-excluding Honey-board Under the Hive to Prevent Swarming

I have 14 stands of bees in Danzenbaker hives. I am a day laborer, and do not want many more bees. How would it do to put a queen-excluding honey-board on the bottom-board under the hive at swarming time, so that the queen cannot get out?

Flora, Ind., April 6. S. W. High.

[Our opinion is that your plan would be a failure, because the queen-excluder would soon become clogged with the bodies of dead drones; and, besides that, it would be a serious hindrance to the loaded bees passing through. A better plan would be to use an Alley queen-and-drone trap on the front of the hive.—Ed.]

Feeding and the Kind of Sugar to Use

How do you prepare sugar for feeding bees? Is there any profit in feeding? What kind of sugar is used?

Oakland City, Ind., Mar. 27. Albert Jordan.

[Sugar is prepared for feeding by dissolving it in water, thus making a syrup of a consistency varying with the time of year in which it is to be fed. For fall feeding it should be about half and half. For spring feeding within the hive it should be about three of water to one of sugar; and for outdoor feeding about nine water to one sugar. Generally speaking, stimulative feeding in the spring is a very good thing for the beginner to let alone. Granulated sugar only should be used.—Ed.]

Ground Ants Bothering Bees

My bees are bothered by the ordinary garden or ground ant in the summer. Do they hurt any thing? Tell me how to get rid of the pests.

Gilbert, Pa., March 30. Elmer E. Hinton.

[You can get rid of the ants by finding their nests. and with a crowbar or some similar instrument punch a hole down about two feet into the ground in the middle of their hill. Drop in about a tablespoonful of carbon bisulphide, and cover it up. This ought to get rid of all the ants. If they should bother you again from the same nest, give them a little heavier dose.—Ed.]

Value of Bees in a Cucumber Greenhouse

A neighbor (a market gardener) has four colonies of bees to fertilize his hothouse cucumbers. I take care of them, and get the honey. From them and two in our back yard last season I obtained 1007 lbs. of extracted honey, which we sold at 12½ cts. per lb.

The second week of picking, the owner of the four colonies picked 200 dozen cucumbers per day, and received an average of 80 cts. per dozen.

Elmira, N. Y., March 18. P. F. Conklin.

Preventing Bees from Flying when it is Too Cold

The best method I have found to check spring dwindling is to place the front of the hive to the north and put a shade-board on the south side. When it gets warm enough so the bees can fly they can nearly always get back to the hive.

Elsie, Mich., March 22. C. K. Carter.

A. I. Root OUR HOMES Editor

Fear not them which kill the body, but are not able to kill the soul; but rather fear him which is able to destroy both soul and body in hell.—MATT. 10:28.

MORE ABOUT THE BOY WHO WAS DROWNED AND AFTERWARD RESTORED TO LIFE.

The matter for Our Homes in our issue for May 1 was prepared hurriedly, so as to be in time for that issue. Later I found out where the boy lived, and visited his home. A little inquiry elicited the fact that the two boys mentioned were truants from school. The teacher imposed some penalty—I think staying after school, or something of that sort; but, like many another thoughtless boy, he sought to outwit his good teacher by running away from school and going in swimming. I wonder if a guilty conscience did not have something to do with his getting "rattled" while in the water, so that he could not swim. I suggest this because of some experiences of my own when I was about his age. This boy's name is Vaughn Tharpe, and he lives in the outskirts of Bradentown. Let me digress a little.

When I saw that boy repeatedly going down into the water, and was evidently nearing his death, a terrible load of responsibility rested on my shoulders. I recalled vividly a recent story in one of the dailies of a boy about his age who was run over and killed by an electric car. When the poor mother saw his mangled and lifeless body she became a raving maniac. It took several strong men to hold her, and her screams of mental agony were heart-rending. I thought of *this* boy's mother. Suppose she saw *me* standing apparently helpless while her boy was going down to death. If the readers of GLEANINGS could have seen me run as I rushed to the house to tell Mrs. Root to alarm the neighbors and to get a doctor, they would have scarcely believed I was close to 75 years of age. Luckily I was very lightly attired; for in spite of Mrs. Root's protests I work in the garden with just as little clothing as possible. When we get to be past threescore years and ten, most of us get along with our work better by disposing not only of every pound but of every ounce of useless apparel. I think I can run for a short distance about as fast as I ever could. A sacred responsibility rested on me to spare no effort, physical or otherwise, to restore that boy to animation; and, by the way, every man, woman, and child should be taught by competent authority *what* to do in case of drowning. I knew the water must be first gotten out of the boy's lungs, for I had an experience of my own of that kind years ago, when I, too, nearly lost my life. I had sense enough to lie down on my face with my head downhill; and it was a feeling of relief I shall not soon forget when I found I could breathe again. I supposed the boy would revive in a like manner; but he showed no signs of life until Wesley turned him with his head up hill and began to roll and rub him. I was not present when he revived; but Wesley tells me the boy finally coughed and sneezed, and then expelled another great lot of water from his mouth and nostrils. When I reached the place, just after calling the town doctor, the boy was able to sit up and talk. Several days afterward, when he and his mother called at our place to thank Wesley and myself, I questioned him about playing truant, and he replied, "Mr. Root, you may be *sure* I will never run away from school again as long as I live."

Let us now consider our text for a moment. You may wonder what it has to do with what I have been telling you. Let us look at it this way:

In answer to my prayers—mental prayers, perhaps, although I think I spoke out loud when the boy sank for the last time—God heard me; and when the water threatened to be over Wesley's head,* so that he feared he could go no further, I prayed for footing for the next step, a little higher up, *that* prayer was answered; and the third time, when Wesley said all his efforts were unavailing, I prayed again as I hastened off for the doctor. The prayers were answered, and the boy is now alive and well.

But, my friend, what does it all amount to, providing this boy should grow up to be a drunkard, or, what is more likely, a cigarette fiend? This "Safety First Society" that promises to do a mighty work in saving the lives of our children is a grand undertaking. Every man, woman, and child should join it and work for it. The mothers

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* I tell you, friends, that was a serious and critical time when I took the responsibility of telling Wesley, a man who could not swim, to push ahead when he had to raise his chin to keep his mouth out of the water. I came very near indeed having not only a drowned *boy* on my hands and conscience, but a drowned *man* also. Some of you may think that one who cannot swim could push ahead a few feet under water. Not so. In a second more the water would have taken him off his feet, and then he would have been as bad off as the boy. There was no one near except the other boy, standing still and shivering on the opposite bank. I could not get *him* even to run for help; and there was a tangled thicket along both shores of the stream, and it was quite a distance to any house. If there was ever a time when one needed to pray for *God's* help with all the faith and energy he possessed, that was the time.

especially will do this; but what *does it* amount to if we simply prolong life and do nothing for the immortal soul?

Lucy Page Gaston (may God bless and sustain the woman) informs us through the *Union Signal* that last year there were manufactured in the United States *three billion eight hundred million cigarettes.* She says that new factories are constantly springing up to make cigarettes for the boys. Many of the older factories are working night and day, the demand is so great. If you take a little pains you will discover that children are learning to use cigarettes on the sly almost if not quite all over the land. They are hired by the manufacturers to distribute cigarettes and help cultivate an appetite for them. Many a parent does not know his boy has ever touched a cigarette until the child is pretty well along in the habit.* The government of the United States some time ago started a crusade against "*habit-forming* drugs," and later still a movement against "*baneful drugs.*"

Now, wouldn't you think these two organizations would hit cigarettes? So far as I can learn, they overlook or ignore cigarettes because of the great American Tobacco Co. The liquor business has shown itself to be bigger than Uncle Sam; but just now Uncle Sam is waking up and rolling up his sleeves. The Anti-saloon League has sometimes suggested that we should not undertake *too many* jobs at once. I think that at one great temperance convention they thought best that Lucy Page Gaston should not talk about cigarettes, as it might divert attention, just at a crisis in enacting laws against the liquor-traffic. May be that is wisdom; but, oh dear me! can we neglect our boys?

Once more: A kind Providence permitted me to save that boy's life. Is that all? Shall I now drop him and let him drift away out of my sight among the multitudes? God forbid. The poor mother said he had not been going to Sunday-school since they moved into Bradentown because he could not dress as well as the other children. But I talked with the mother and with the boy, and I also talked with Mr. Rood, the superintendent of our Sunday-school, and he will look after the boy. Furthermore, I am going to send the boy GLEANINGS; and while you are reading the words I am now dictating, the boy may be reading them also. I prayed that his life might be spared, and God heard and answered. Now will you not unite with me and pray that a higher and more important *life* may be developed, and that the boy may grow up to be a *benefit* to humanity? And while we think of him and pray for him, shall we not also think of and pray for all the boys (and girls too) of our great nation and throughout the wide world? I am rejoiced to know that there are movements on foot to save the lives of the boys and girls in India, China, and everywhere else, where they are neglected and suffering.

When I was two years old the doctors told my good mother that there was no hope—I could not live. But she prayed, and had faith to believe that I might live in spite of what the doctors predicted. Of course she was thankful for this; but she was not satisfied, and kept insisting and declaring all the time, until I was a married man and had children of my own, that there was a higher life for me that I had not yet touched. I, a grown man, laughed at her faith and her continued prayers and importunity. She said, as some of the older readers of this journal may remember, that I was yet going to work for Christ Jesus exactly as I had been so far working for the honey-bees; and that is why, dear friends, I am exhorting you all to-day not only to care for the physical health, life, and well-being of these little ones growing up in your homes, but for that other life in God's spiritual kingdom—that "kingdom" we talk of in that wonderful prayer, "Thy kingdom come, thy will be done on earth as it is in heaven."

SHOULD A MINISTER OR SUNDAY-SCHOOL TEACHER USE TOBACCO, ETC.?

Dear Brother Root:—I say, God bless the man who strikes such blows at the liquor, cigarette, and (for that matter) all other conventional follies right from the shoulder. May he give more strength to your muscle.

It is, perhaps, none of my business; but candidly I should like to know, if you were a regularly ordained minister, would you dare to speak as plainly to your flock as you write with your pen? If so, I venture the assertion you would be asked to get "down and out."

Please come with me to one of the largest churches on this coast. Its pastor gets a big salary—I can not say how many thousand dollars. It makes me feel unusually "warm above the collar" when I think of *another* pastor with a large family who gets $700, lives in a place where you would hate to put your chickens to roost, and can't afford to give his children a ten-cent ride to the beach while the other takes his annual trip abroad or across the continent.

Well, the pastor of the big church thunders against the liquor traffic, white slavery, the slit skirt, tango, and all other up-to-date dances, and about every thing else under the sun but *tobacco*. On this theme he is delightfully silent. Many of his officials, including deacons and Sunday-school teachers, smoke and chew, and he knows on which side his bread is buttered.

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* The city of Tampa is about sixty miles north of Bradentown; and besides a railway there are two steamers that make the trip from Bradentown and return every day. These steamers not only bring cigarettes but liquors as well into Bradentown, which has never had a saloon, and, by God's grace, it never will have.

After the above was put in type I came across the following which I clip from the *Union Signal:*

"In Tampa and Key West the conditions are appalling. About eighty per cent of the children between eight and sixteen are or are becoming confirmed tobacco victims. The crusade there should be continuous and persistent, educational, and in the line of law enforcement."

Allow me to introduce you to a lad about eighteen. A year ago he was a church and Sunday-school goer. To-day he is in the high school, and smokes cigarettes. Does he still come to Sunday-school? Of course not. For convenience I will call him Tom. Meet him, if you will, Mr. Root, and say, "Tom, my dear lad, cut out those cigarettes. Don't you know they will ruin your mind, body, and perhaps your soul?"

If I were Tom I'd say, "Mr. Root, go to Mr. Blank, the church deacon, and Mr. Dash, the Sunday-school teacher. Get *them* to give up smoking, then come to me. I'm following their example.

"Yes, but you say they smoke cigars. So will I when I can afford to. It costs 10 cts. and up for a cigar. I can get a dozen cigarettes at that price."

From my observation this condition obtains in all churches. In face of these facts, is not the church (no, not the church, heaven forbid, but so-called members) responsible for our boys going to the devil by way of the cigarette route? My wife (one of the very best on earth) is an ardent worker among the little folks in Sunday-school. I tell her if we had a boy I'd hesitate sending him to Sunday-school for fear lest, some day, he would come home and say, "Father, my teacher smokes; and when I can earn money I shall do the same." See the point? Paul says, "If meat make my brother to offend I will not eat it (not much danger nowdays of meat making our brother to offend—the price is too high); but the good Lord knows tobacco is making our boys "offend" beyond all conception; and to my mind there is no factor helping to spread this blasting plague more than the example of church folks.

In talking this way to some people they say we ought not to look at church members; we should look at Jesus. What silly rot! If church members are not to be looked at and imitated, then in the name of the Master what on earth *are* they for? What does the average boy or girl know about Jesus, any way? Ask them why we observe Christmas or Easter. They know it has something to do with Santa Claus or a new Easter bonnet. Beyond this they are ignorant, and why not? They learn nothing of him in the public schools, nor in their homes, and they don't go to church or Sunday-school. No, they can't see Jesus; but they do see church members, his professed representatives; and if their example is not fit to follow, then in all common sense whom *can* they follow? My feeling is, "when the roll is called up yonder," 95 per cent of our church members "won't be there" unless they get a "move on" and change tremendously their fashion of living. If this is not so, I need to be shown, and I'm not from "Missouri" either.

Yours for Christ and the boys,

Dixon, Cal., Dec. 18. JOHN T. BOWEN.

My good brother, I fear you put it too strongly. Our Medina, O., pastor and our Sunday-school teachers do not use tobacco, and I think I can safely say the same here in Florida. Our Sunday-school superintendent *frequently* talks to the boys very plainly and emphatically about avoiding tobacco. Billy Sunday, whose converts are *continually* going up into the thousands, hits heavier than I do, yet his "audiences" don't seem to grow small. Don't we all need a little more "Pollyanna"?

POULTRY DEPARTMENT

STARTING THE EGGS UNDER HENS.

Mr. A. I. Root:—I am much interested in your writings, especially on poultry. I am in the poultry business in a small way, and I want to tell you about my splendid hatches with a fifty-egg Cycle incubator.

Several years ago you suggested starting the eggs under hens, testing out the infertile ones, and at the end of a week putting the fertile eggs in the incubator and setting the hens over again. The first time I tried your plan I put 56 eggs under hens, and on the fifth day tested out five infertiles, and at the end of one week put the 51 fertile eggs in the incubator and set the hens over again. Out of the 51 eggs in the incubator I got 50 chicks. The second time I put 52 fertile eggs in the incubator and got 52 chicks—fine, strong, and vigorous. Every egg hatched. I couldn't have done better. I call this way of hatching chicks the *Root* plan.

I have one good vigorous yearling cock (S. C. W. Leghorn) mated with 25 splendid two and three year old hens, and the fertility has been very good indeed; but I find that hens will start every germ, which an incubator will not do; so if one has enough hens to start the eggs for a small incubator it is quite a saving in eggs. I am using Buff Orpingtons for sitters. I made a tester after your plan, out of a "Mother's Oats" box. I like it very much indeed, but think I have improved it somewhat by having my wife sew some soft cloth around the open end that fits up to the forehead and nose. Being soft, it shuts out every particle of light, fitting closely to the face.

We use the sun for testing when possible, and can do it more thoroughly and quicker than with a lamp. I have 104 fertile eggs in two Cycle incubators, and really I shall be disappointed if I don't get more than 100 chicks. I have hatched several hundred this spring, and have had only one cripple. I have advertised a little, and found that there is a good demand for baby chicks. Several of my six-day-old White Leghorn incubator chicks followed a neighbor a quarter of a mile from the house, came back with him, and seemed as fresh as ever when they got home. I have never had such vigorous chicks before.

DWARF ESSEX RAPE FOR CHICKENS.

I do not remember ever hearing you say any thing about rape for chickens. In my estimation there is no green quite so good for poultry as dwarf Essex rape. You can sow the seed here about the middle of August, and in six weeks you can begin to cut or turn the chickens on it. It can be mowed or cut (if not too low) three or four times during the year, and will grow right up again.

I have a small patch that I sowed the middle of August. When it was large enough I turned the poultry on it and they stripped the leaves right down to the ribs. Then I cut the old ribs off and let it grow out again. It is now fine and large, and ready for the knife or the flock. It certainly is a wonderful plant for poultry.

At first I tied the leaves in bunches and threw them in the pens; but, of course, that way they could not eat the ribs, which was a great waste. I now have a clover-cutter, and cut the leaves, ribs, and all, so there is nothing wasted.

Lakeland, Fla., April 28. C. H. TIDD.

Our friends, or some of them, at least, will recall that this matter of starting eggs under a hen came up some time ago, and several communications have indorsed what I said—namely, that a sitting hen would produce more fertile eggs from a given number than any incubator made. If I am correct, even the Cyphers people were obliged to admit that this is true, at least to some extent. My experience would indicate that letting a hen have the eggs for just three days is an advantage, for in three days' time, with the egg-tester mentioned in the above letter, the fertile eggs could be readily picked out.* The suggestion of having the pasteboard box lined with cloth where it touches the face is a very important one, for just a little light getting through a crack or crevice will mar the vision; and the very best place to use it is in a dark room where a single ray of sunshine comes through a knothole or crevice. If you wish to be able to test out the fertile eggs in *three days,* be careful to have every thing just right. I am glad to see such a good report from near my Florida home.

HIGH-PRESSURE GARDENING

THE DASHEEN; KEEPING IT CLEAR FROM WEEDS, ETC.

There is one important point in regard to this new vegetable that I think I failed to mention. When it first comes out of the ground, as perhaps hundreds of our friends are now noticing, it has a single point, almost as sharp as a needle. This will push its way through very hard and uninviting soil. In spading our ground over where we had dasheens last year, many of the small tubers were turned under; and as I directed Wesley to go down a full foot with his spading, many of these little tubers were a foot under ground; and although it was some time before they got up to the top they did eventually, almost every one of them. I have mentioned this matter before in speaking of the "dasheen asparagus." The shoot or stalk will, of course, be bleached white until it reaches the surface. Now, when it once gets up to the light, if you throw some dirt over it, it will keep right on shooting up; and in this way you can get these asparagus shoots, as we call them, not only a foot, but even 18 inches long. Now comes the point of my discovery:

Many of you have weedy gardens; and as the dasheen is sometimes three or four weeks or more in starting, there may be quite a growth of weeds. If so, you need not try to pull them unless you choose. Just hoe some nice mellow earth right over the dasheen plant. The dasheen will shoot right up through this soil, but the weeds cannot do it. So here is a short cut in the way of cultivation. Plant your dasheen tubers in a moderately deep furrow, as we plant potatoes. Now, instead of filling up the furrows with dirt, just fill them up about half way. When the weeds and dasheens both get a start, throw on a little more soil. In a few days the dasheen will get up through this additional soil, and perhaps some more weeds may start. If so, just turn on a little more dirt, and in this way you can have a clean field without any hand-hoeing at all. The cultivation can all be done by a hand or horse cultivator.

THE AMADUMBE OF SOUTH AFRICA.

Just before we left Florida we tested the amadumbe by taking off some of the side shoots, tops, and tubers; and it is so near like the Trinidad dasheen we have been talking about, that we will call it all one and the same thing. Thus it seems to transpire that the dasheen that is so new to America has for years past been one of the main products for human food over a large part of the world. Once more, what is the matter with our American seedsmen who have heretofore been so eager to find something new and valuable for the home garden?

THE DASHEEN IN ALABAMA.

Dear Mr. Root:—I took pleasure in reading what you had to say about dasheen in a recent issue of GLEANINGS. The Bureau of Plant Industry was kind enough to send me 24 tubers or bulbs last May. These were planted about May 10. The first part of the season was very dry; but in August the rains were plentiful. In October I used a common scoop shovel and dug the crop. The ground was rather wet, and I was afraid they would freeze if left longer. The entire roots, corns, tubers, and dirt, with a portion of the rank necks, were banked in dirt. The dirt was allowed to fall in between the roots so that no two plants touched each other.

To-day, March 17, I took these dasheens out of the dirt, and every one of them was as sound as a dollar. Not one had rotted. One corm, after all the tubers, roots, and dirt had been separated from it, weighed one pound and 15 ounces. The corms kept as well as the fresh or young tubers.

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* As to why a sitting hen is able to start the germ in eggs that will not show any signs of life at all when placed in an incubator, no one has so far been able to tell, so far as I know; not withstanding, I do believe it will pay to keep sitting hens employed, especially the large breeds that want to sit so much, in preparing eggs to be put in an incubator. My experience agrees exactly with what our good brother tells us.

My reason for calling your attention to this is because you mentioned the fact that the corms were not so easy to keep as the young tubers. Of course my hill was protected from the rain, and the dirt was thick enough to keep out frost. Lowest temperature this winter was 16 F. The sap had never left these plants, and most of them had strong new sprouts and roots to them, so that they are ready to go right to growing in the pots where they were placed. And, by the way, I am debtor to you for the idea of starting them in pots. My pots are heavy manilla paper sacks, which I expect to peel off and set the rooted plant, dirt and all, in the open ground about May 1.

Pell City, Ala., March 17. BAYS D. CARTER.

My good friend, we are exceedingly obliged to you. The above demonstrates that, with a little care and pains, the dasheen may be kept with little trouble so it will be available for food every day in the year; and, more than that, tubers kept in this way will start out with wonderful vigor, and in good soil ought to make plants as high as your head before frost comes again. I am pleased, also, to note that you have succeeded already in getting corms weighing close to two pounds, and that even the *corms* went through the winter without any loss.

Just now one of my good friends said in one of his kind letters he hoped I would let up a little in regard to dasheen. All right. The dasheens are planted and growing finely, and we will now talk about sesame for people and chickens. *Another* of God's unnoticed gifts.

"SESAME"—THE NEW FOOD PLANT; SEE PAGE 239, MARCH 15.

After getting the seeds from South Africa they were planted at once, but for some reason none came up. Later I found the plant already growing in Florida, and succeeded in getting a few seeds which were planted and came up very promptly. When I left Florida, about the last day of April, they were up so as to show the second leaves. Here is something from the West Indies in regard to the same plant:

Permit me to say to Mr. Root that I grow sesame, and have been selling quite a lot by mail to nearly all the Southern States—mostly in ounce packets at 10 cents. The sale was brought about by a letter from myself to the *Southern Ruralist* of Feb. 15, describing the seed and some of its uses. I am out of seed now, except for planting, but will be ready with more in about four months.

JOHN M. BREWER.

Columbia, Isle of Pines, West Indies, April 20.

Later.—After the above was dictated I ran across the following, which I extract from the *Florida Grower;* and from what I know of it I have no doubt that these little seeds will be the nicest things in the world for little chicks. Some years ago we purchased some French bread—I think they called it French—that was very highly recommended, and all over the glossy surface of this bread were some little seeds that gave the bread a peculiar and (to me) very enticing flavor. From what follows below I think that, without question, these little seeds were sesame. Now read the following:

Of all known plants the magicians have selected one, the sesame, or bene, as their own. Presto, change! Open, sesame! These words are known wherever the magician plays his art. It is simply a transformation; he uses the first incantation; but if from some closed or hidden source is to proceed some marvel, as a white rabbit from your hat, or a twenty-dollar gold coin from your empty pocket, in all such cases he says, "Open, sesame!" But how many of us know why he says so?

The sesame is an oriental plant. India largely supplies Europe with the seed, which go mostly when compressed into sesame oil. China exports thousands of tons to America, which all Germans and Greeks especially are fond of, whether eaten like peanuts or put into bread, cake, candies, or sausages. The seeds are small, somewhat like tomato seed, and are rich, nutty, and oily in their taste. Each plant, about five feet high and widely branched, produces 25,000 to 30,000 seeds. The leaves have medical virtues, and, though not disagreeable to the taste, the plant is never eaten by cattle.

The plant is the greatest known attractor and feeder of birds in fields, parks, and game preserves. The game preserves about my home here at Augusta, Ga., have had finest results from sesame. It is equally good about the home for birds, poultry, or little chicks. Doves and quail are exceedingly fond of it, and it serves as a great attraction for them. It is an annual—grows anywhere. When regularly planted in fields, plant 3½ x 2 feet, 5 pounds to the acre, in June, and it ripens in about 100 days—ripens as far north as Kansas or Missouri. One acre makes from 1000 to 1500 pounds of seed.

The five or six branches of the plant are loaded with pods, and there are fifty or more seed to the pod, which lie over and on top of one another. These pods are about 1¼ inches long, and have three or four seed-chambers.

The magician comes in just here. The ripened pods have a queer, quite magical way of suddenly bursting and sending out in all directions showers of seed. The force of the explosion sends this mist of seed to quite a good distance. In the dry August and September days these explosions are incessant. One who sees them well understands why the world's magicians have so long and so exclusively claimed this plant as their own.

N. L. WILLET.

Editor's Note.—Sesamum Indicum, to which our correspondent refers, has been extensively cultivated in Asia and Africa since times immemorial. Sesame oil, extracted from the seed, known in India as "til," is used for the same purposes as olive oil, and, although less widely known by name, is commercially a much more important oil. The leaves are used medicinally in cases of dysentery and diarrhea in children, and the soot obtained from the burning oil constitutes one of the ingredients in India or China ink. Large quantities of oil and seed are imported into Europe from Asia for the manufacture of soap and adulteration of olive oil. This plant might be cultivated with advantage in South Florida.

If the sesame makes as interesting a breakfast food as is described it ought to be very useful to Florida folks, and I am quite anxious for the summer rains to get here so that I may plant the seed for which I have sent. Judging from the description it must be that the old time "benny" or "bene" as some spell it, is a relative at least of the sesame which is now being started on its popular way. The old benny is described as dark-colored, making its pods only at the tips of branches, while the present sesame species carries pods in long rows along the branch and main stalk; and the seed, which is parched and used as a cereal, is nearly white. It is a rainy-season crop, moreover, and said to grow quite easily on soil that is not especially rich. Besides being used for cereal the parched seeds are ground at home in the kitchen grinder, and used in pancakes. If there is any thing as easily made as this is reported, and available for two such uses, it will surely make its way in Florida as soon as tried out. I am sending also for enough to see what the flavor may be. The sesame which I have seen sprinkled over bread baked by Syrian bakers in the New York quarters lends a fine flavor to their crust. These foreigners may use it also in some way corresponding to our cereal; but so far as my acquaintance with them goes they are not strong on so-called breakfast foods.

TEMPERANCE

THE "OPENING CHASM."

A correspondent of the Medina *Gazette* writes about the "chasm" that separates the Progressive and Republican parties, to which Editor Rowe replies as below:

> There is another "chasm" opening. It is a single issue that is going to be presented at the bar of public opinion in Ohio this year that will make this "chasm" one so wide that there will be no bridging it if it separates two parties. It is going to make a "chasm" through the whole length and breadth of this nation before another presidential year has come around. It is the proposition for the absolute extinction of the American saloon—the wiping-out of the nation's greatest curse by the national prohibition of it. Business as well as the church, the home, and the individual are rising in their wrath and might against it. It has got to go—and the Progressive party of Ohio is this year going to declare absolutely for its extinction—for wiping it off the face of the earth—without compromise or paltering.
>
> Won't it make a "chasm"? Will either of the old parties dare line up on the issue? Will they do any thing but evade and shuffle and compromise with it as they have always done?

Amen to the above sentiment. It is the best illustration of boiled-down "common sense" I have seen in a long while. Once more I ask, "Will the old parties *dare* line up?"

"OUR CUSTOMERS ARE YOUR PROSPECTIVE PATIENTS."

Please read the following, which we clip from the Cleveland *Plain Dealer:*

> William H. Anderson, president of the New York Anti-saloon League, placed in the record a letter addressed to a whisky "cure" concern at Dwight, Ill., and signed by a distillers' distributing company at Kansas City.
>
> "Our customers are your prospective patients," it read. "We can put on your desk a mailing list of over 50,000 individual consumers of liquor. Each individual on the list is a regular user of liquor. The list of names is new, live, and active. We will furnish this list in quantities at the prices listed below."
>
> A scale then was given.
>
> Wayne B. Wheeler, superintendent of the Anti-saloon League of Ohio, declared that the fight against the liquor traffic had been finally brought "to the last stand of the liquor interests, the barricade of the national protection of the traffic."

What you do think of the above for "cheek"? These liquor-dealers not only offer to *sell* the names of their patrons, but coolly own up that their customers will sooner or later wind up in a "*Keeley cure*" institution; and, by the way, is that not also rather a "fling" at the whole "cure" business? Our older readers will remember that when the Keeley remedy first came out I strongly insisted that the only cure was the gospel of Christ Jesus.

"GOD'S KINGDOM COMING."

We clip the following from the *American Issue* of April 18:

> Last week was certainly a nightmare to John Barleycorn. It must have reminded him of the effect he has on his victims. The week started with the announcement of the Chicago *Record-Herald* that it would not longer accept liquor advertisements because it did not care to commend that which society regards as a menace. Then came the order of Secretary Daniels prohibiting the use of intoxicants in naval stations, in navy yards, or on board Uncle Sam's ships. This was followed by the abolition of one thousand saloons by the voters of Illinois and the cleaning-up of wet territory in Michigan, Minnesota, and Nebraska. All this did not tend to boost brewery stock. Before the week was half over, the common stock of the Hoster-Columbus brewery, the biggest concern of its kind in Central Ohio, was down to one-fourth of a cent on the dollar, while for its preferred stock but five cents on the dollar was bid.

LONDON TEMPERANCE HOSPITAL: A FAMOUS NON-ALCOHOLIC EXPERIMENT.

Mr. Root:—In GLEANINGS for Dec. 15, page 914, you speak of a hospital in England which has not used liquors for 40 years. Now, that is a clincher. Please write me the name of the hospital, and where located. I have never seen the *Union Signal.*

Bergville, Minn., Jan. 10. A. B. WHITE.

The above letter was submitted to the *Union Signal,* and they reply as follows:

Mr. A. I. Root:—Replying to your letter of January 16, inquiring as to the full address of the hospital referred to in the article in the *Signal* of Nov. 6, we beg to say the only address we know is The London Temperance Hospital. We are sending to Mr. White a marked copy of the Nov. 6th paper. If you or he desires further information in regard to the matter we would advise you to correspond with Mr. Chas. E. Bailey, 1 Stanhope Road, Wheatley, Doncaster, England. He has been a contributor to *The Union Signal* for a number of years, and we have always found him accurate in his statements. We feel sure that what he says in the article is correct.

Evanston, Ill., Jan. 21. JULIA F. DEAN.

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Gleanings in Bee Culture

VOL. XLII. JUNE 1, 1914, NO. 11.

The Old Original 1853 Edition of Langstroth Reprinted Now Ready for Distribution

One of the Most Charmingly Written and Entertaining Books that was Ever Published

It so stirred A. I. Root in the early days that he wrote: "What a gold mine that book seemed to me! . . . Never was romance so enticing—not even Robinson Crusoe; and, best of all, right at my own home I could live out and verify all the wonderful things told therein."

Here is what Others say:

This will preserve the original for future generations. G. M. DOOLITTLE.
Marietta, N. Y., April 16.

I am much pleased with the reprint which has come to hand.
Amherst, Mass., April 15. B. N. GATES.

It is very interesting, not only from a sentimental but from a practical standpoint.
Guelph, Can., April 21. MORLEY PETTIT.

The dear old man was one of God's very own; and to have this reminder of him on my book-shelf will give me much pleasure.
Sacramento, Cal., April 18. A. J. COOK,
State Commissioner of Horticulture.

It seems good to read again this charming work. It must ever remain to the American beekeeper a classic, both instructive and fascinating.
Middlebury, Vt., April 15. J. E. CRANE.

It is well to have Langstroth reprinted; and if all would read it, many would be saved from going over well-thrashed straw. I have several of the early editions, and am glad to add this to them.
ARTHUR C. MILLER.
Providence, R. I., April 20.

I have a copy of the reprint of the 1853 Langstroth. I have long admired the writings of Langstroth, and had read his original edition with great interest. It is especially interesting in that he discusses some of the points that are annually "discovered" by others who are unfamiliar with the literature on bees. I feel that it will benefit American beekeepers to become familiar with this book, and trust that it will have a wide distribution. The book is a classic, and should be known to all good beekeepers. E. F. PHILLIPS.
Washington, D. C., April 16.

I am much pleased to get the reprint of Langstroth, and I thank you heartily for the same. I have not yet had a chance to look it through, but did look into it enough to recognize the dear old book. It was the very first thing I ever read on bees, and I read it through the first night—the night of the day I captured my first swarm. At least I read it till I dared not sit up any longer lest my father arrive on the scene with a slipper. I did not dare look at the clock when I finally did go to bed. Yes, I got the fever bad. ALLEN LATHAM.
Norwichtown, Ct., April 30.

"Entered according to Act of Congress in the year 1853, by L. L. Langstroth." Entered at the same time, without any act of Congress, by means of the book containing the aforesaid legend and the hive which accompanied it, a flood of light upon the dense darkness that had from the foundation of the world enshrouded the secret and mysterious doings of the little busy bee within its closed domicil.

That divides the history of beekeeping into two distinct periods—the long ages before 1853, and the little span of threescore years since then. The rapidly diminishing few who have lived in both periods are in best position to appreciate the immense difference in the two. As we scan again the pages of the old—and ever new—book, "Langstroth on the Hive and the Honey-bee," how memories arise of "the grand old man" with the inventive brain and loving heart, and with the gentle voice we loved so well to hear! What a blessing that the same man who could make such a revolutionary invention could also write so beautifully! Whatever other books the beekeeper may or may not have, he is likely always to cherish the one classic from the graceful pen of the beloved Langstroth. C. C. MILLER.
Marengo, Ill.

While some of our readers may, perhaps, feel that this work would be out of date, the fact is,

FATHER LANGSTROTH WAS 60 YEARS AHEAD OF HIS TIME.

So much so that he revolutionized beekeeping throughout the world.

The book that helped to bring about this remarkable revolution is well worth reading to-day. It is full of valuable tricks of the trade.

PRICE: 400 pages, bound in cloth, $1.00 postpaid; clubbed with GLEANINGS, $1.50; with A B C and X Y Z of Bee Culture, $2.50; with Dadant's Revised Langstroth, $1.85.

The A. I. Root Company, Medina, Ohio

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.
H. H. ROOT, Assistant Editor E. R. ROOT, Editor A. L. BOYDEN, Advertising Manager
A. I. ROOT, Editor Home Department. J. T. CALVERT, Business Mgr.
Entered at the Postoffice, Medina, Ohio, as second-class matter.

VOL. XLII. JUNE 1, 1914 NO. 11

EDITORIALS

A Broken Arm and Hundreds of Stings as a Result of Climbing a Tree for a Swarm

IN addition to the danger of losing valuable swarms there is the added danger, when one is obliged to climb trees, of breaking a leg or an arm. For this reason, if for no other, queens should be clipped.

We are indebted to one of our subscribers, George M. Fetzer, Allentown, Pa., for a clipping describing a most painful accident to Frank Coffin, of Slatington, Pa. Mr. Coffin had climbed a tree for a swarm, and, holding himself by means of a lineman's belt, began to saw off the limb on which the swarm had clustered. In some way his arm was broken as the limb swung down; and as he was unable to free himself so as to get to the ground he was so badly stung that he had to be taken to a hospital.

……

Destructive Smelter Smoke in and about Denver; Hailstorms in other Parts of the State; Prospects Unequaled, However

THE following letter, received from our Colorado correspondent, Mr. Wesley Foster, came too late for insertion in his regular department; but it is of such great importance that we have thought best to place it before our readers in the editorial columns.

SMELTER SMOKE OR CITY SMOKE.

Several thousand colonies of bees have been decimated by some undetermined cause. This is within fifteen miles of Denver. The brood is not affected, except as it becomes chilled or starved from the lack of care and warmth. The great majority of the hives have but a small number of bees in them—less than one month ago. Some of the colonies may build up, but there will be little surplus from them unless there is a good late flow.

The strongest colonies are affected the worst, and weak colonies with pollen carried over from last year are not affected seriously. This leads to the conclusion that it must be something which poisons the pollen. Smelter smoke and probably ordinary city coal smoke will do this. The sulphur deposit from the smoke may fall upon and mingle with the pollen to cause the trouble. There is nothing that can be done that is known so far. The malady affects the bees north and west of Denver for fifteen miles, and east and south for eight or ten miles. This trouble has visited the vicinity of Denver before, and also has wiped out large numbers of bees around Pueblo.

This, if it comes upon us often enough, will play havoc with city beekeeping, and suburban beekeeping for that matter. Beekeepers will have to remain strictly "rural" to avoid smoke.

This bad report from Denver and vicinity will hardly affect the crop in Colorado greatly; but there have been destructive hailstorms in the Arkansas Valley in the past two days. Five inches of hail fell at Colorado Springs, and a very destructive storm visited the west end of Prowers County. I will inform you later of its severity. Prospects are simply unequaled in some parts of Colorado.

……

The New Ruling in Regard to Labeling Food Products

OUR readers will remember, perhaps, seeing on labels covering many of the principal food products on the market the words, "Guaranteed under the pure food and drugs act of June 30, 1906. Serial No. —. But it now appears that certain unscrupulous manufacturers are trying to make it appear that when the Government gave them a serial number it thereby put its seal of approval on their products. All this serial number signifies is that the manufacturer has agreed to comply with the requirements of this food act. While he may comply strictly with the letter of the law, his product may be of very poor quality, and the guarantee clause has made it appear as if the Government said they were all right. The Government has now amended the rules and regulations in such a way that after May 1, 915, the words "Guaranteed under the pure food and drugs act of June 30, 1906, serial No. —," shall no longer be used. But a manufacturer has a right to guarantee on his bill of sale, invoice, bill of lading, or other schedule that the article is pure in accordance with the pure food and drugs act.

Those who are using honey-labels with a guarantee clause, as before mentioned, will please take notice. To be on the safe side, all new labels should be printed with the guarantee eliminated from now on to make sure that there will be none left by May of next year.

Safe Arrival of the Second Load of Bees at Medina; Robbing at our Home Yard

The second car of bees arrived here in splendid condition, notwithstanding it has been very hot for a couple of days back, and that at the hour of arrival the mercury hovered close to 90 in the shade. To make matters still worse, the honey-house door had been left open on the Sunday previous, and the bees, already in the yard, found it very convenient to help themselves to honey in the combs. They were, indeed, doing a land-office business when they were discovered. The next day was the day when the bees were to arrive, and we were exceedingly apprehensive as to what the result would be when the car should be unloaded, especially if there were any melted or broken-down combs. As the mercury remained high, and the hour for the arrival of the bees drew near, we became still more apprehensive. In the mean time robbers had pounced on some weak nuclei; and, besides this, there was the characteristic hum of robbing that is any thing but pleasant to the beekeeper.

A platform had been built up at one corner of the home yard, close to a siding where the bees were to be unloaded. All hands had been notified to be ready. The automobile truck and our big team were to be on hand in due time. The weather became hotter and more sultry, and the robbers were as mean as we had ever known them in Medina.

In this connection perhaps we ought to say that we always particularly stipulate, when we hire men for the beeyards, that they be careful to guard against robbing; for a boy or man who allows robbing to get started spoils his chance of getting an increase in wages, even if he does not lose his job altogether. Well, when one of our editorial force hived a swarm on Sunday, and left the door of the honey-house open, the joke was on us. We told the boys it was a good thing that they had the laugh on us.

Soon we heard the toot of the approaching locomotive, and our heart sank within us. Our Mr. Calvert suggested, " Why not unload the bees in the basement of the big warehouse? " Capital idea! Why didn't we think of it before? We immediately got in touch with our local railroad agent over the phone. We told him we wanted that car switched down to the warehouse. The before-mentioned basement is cool, and even on the hottest days it maintains a temperature not above 65. Soon the train came thundering in. The car was put in place, and then a gang of men began work, for not a minute was to be lost. In the space of an hour we had the car unloaded in a cool basement, secure from robbers, and two loads of bees on the way to the outyards. A third load was sent off before dark; and by nightfall we had nearly 100 colonies located.

The basement is so nice and cool that the bees at this writing, 8 A. M., May 26, are perfectly quiet, and the automobile truck is moving the bees to the outyard, 30 colonies at a time. We shall have all the bees placed by noon.

The weather was so extremely warm on this trip that our Mr. Jack Deyell actually gave the bees five barrels of water, and not a colony has been lost so far, and the average bottom screen does not have a hundred bees on it—sometimes not more than a dozen. The most that any has had is a double handful from two or three colonies. Where such loss occurred at all, it was evident there were too many bees to the hive.

We feel now that the next two cars can not come through under worse conditions. There is not a single comb, so far as we know, that was broken down on this trip. We assume we shall be able to do still better on the next two carloads that are yet to come, for conditions can scarcely be worse. The last two started to-day, and will arrive in Medina, probably, on the first of June.

The secret of moving bees successfully is in having strong staging so as to provide plenty of air space at the top and bottom screens of the hive, not too many bees to the hive, and plenty of water *en route*. Our first carload of bees came when the weather was cool, and required only two barrels of water. The second car came when the weather was extremely warm, and took *five* barrels of water.

Our Cover Picture

Our cover picture for this issue, as mentioned on page 413, shows a boatload of three-frame nuclei on the way from Randlett's Landing, Fla., where most of our bees were located, to the nucleus yard five miles above. Before moving the bees north we formed 500 nuclei, 50 at a time, and took them five miles up the river, from which point they were to be picked up by the big boat on the way to Bainbridge when the shipments back to Medina were begun. Some may wonder why we moved them so far away, as it is necessary to have them located only far enough away so that they will not attempt to return to their old entrances. The reason for moving them so far was that along the Apalachicola River the banks are low and the ground swampy in many places, and it would be unwise to locate bees anywhere at random without building platforms to get them above high-water mark. The nucleus yard is located at Fort Gadsky, one of the few places where the bank is high.

It is surprising what a large load one of these small launches will carry. The hives can be piled on the bow and stern, and when the interior is filled up and also the roof above, considerable of a load (twenty-five to thirty hives) can be moved at once. We were able to carry fifty or sixty of these three-frame nucleus hives at a time.

Since there is very little jar, there is no need of fastening the covers, and the entrances are quickly closed with a V-shaped screen pushed in without tacks.

Where to Locate Outyards

As this number is devoted to the subject of moving bees, the matter of locating yards is so closely connected with it that a few words on the subject will not come amiss, even though they may savor somewhat of a repetition of former statements.

First, as far as possible apiaries should be located on a stone or gravel road to avoid mud in wet weather. While a team *can* draw bees and supplies over bad roads, a large amount of time is consumed; wheras with good roads better time can be made, especially if the automobile truck is used.

Second, the yard should be located where moderate shade can be secured, remote from the general highway. and not next to or adjoining a cultivated field. A young apple-orchard, surrounded by pasture, with a driveway leading up to it from the road, makes an ideal place.

Third, the yard should be located two or three miles from any other yard to get the best results; and sometimes it will be necessary, on account of conditions, to put them as close as a mile and a half apart, and sometimes five miles.

Fourth, locate the yard on the farm of some man well known to you—a friend if possible, but always one who is broad-minded enough to know that bees are a great benefit to some kinds of farm crops, especially the legumes, and all fruit-orchards. Never locate on the farm of a narrow-minded, close-fisted man, and one hard to get along with. Bees may sometimes be a little cross. Their flight may encounter the pathway of teams or stock. Bees may, when short of natural pollen, makes themselves a general nuisance around the feed-boxes of stock. A narrow-minded, crusty sort of chap will make no end of trouble; whereas an up-to-date farmer will be willing to put up with some inconveniences for the sake of the benefit the bees may be to him. It is very seldom that bees make any trouble whatever; and to avoid difficulty it is best to locate the beeyard a little back from the roadway, and from the house and farm buildings.

Avoid a clump of woods that leave only narrow openings in places for the bees to enter. Returning bees want a clear wide space for entrance into a grove. If these openings are contracted they will concentrate their flight in places, with the result that there will be thousands of bees flying back and forth at these concentrated points. If teams or cattle get into these lines of flight they may be stung. Apiaries should be located so that the bees may have a free and unobstructed entrance to the yard from all points of the compass. A piece of high ground is better than low ground, both on account of danger of floods in the spring of the year and on account of the fact that the flight of the bees will be above teams or stock on lower ground. Orchards are usually located on high ground to avoid frost. As bees are a direct benefit to the orchard, locations in such places are desirable in every way.

Lastly, avoid a location next to a railroad track. We had one such location, and maintained it for a couple of years; but we were compelled to abandon it on account of fire from cinders lodging in the grass. We had two colonies burned up, and it is a wonder that the whole yard was not burned out.

Where one does not own an automobile it is desirable to locate the yards along trolley lines, so a man can, for a nickel or a dime, go to his yards at very little expense.

That Trainload of Bees en route from Florida to Ohio

On page 363 of our last issue we stated that we hoped to make an increase of four carloads of bees from one, and we have; but as the weather was very unfavorable, practically all of that increase was made since the first of February, and the greater part of it since the first of March. Mr. Marchant did not have a full carload when he arrived at Apalachicola last November. A blizzard of snow came on in Medina just about as we shut the bees up Nov. 19, as has been explained elsewhere. They lay in the snow for some four or five days, and a couple more days in our warehouse. All told they were confined for two weeks. The cold blizzard in the North was followed by a hot spell in the South, and the poor bees were compelled to go from one extreme to the other. The loss on the first car down was nearly 25 colonies out of the 300, so the increase was made up practically from 275. Only a few of the entire number were fair colonies. Practically a majority of them were four and five frame nuclei. When the cold weather of February and March came on, it seemed very improbable that much of an increase could be made. No wonder Mr. Marchant had the "blues." But a good flow from black tupelo and better weather conditions helped much. He felt that he *must* succeed, and did to the extent of making 275 weak colonies into 800 fair colonies and 500 three-frame nuclei. This would make the equivalent of nearly 1000 colonies all told. Mr. Marchant had figured on bringing back three carloads from the one, and in securing enough honey to pay the freight. He not only did this in a bad year, but actually made an increase of four carloads and secured enough honey to pay the freight down and back on the bees. He did not, however, rear any queens. These were furnished him by his father.

The first car started north on the 8th of May, and arrived in Medina on the 13th in splendid condition. There were only about five combs broken down, and they were old ones. All the new combs had been extracted down until there was very little honey left in them, or just about enough to carry the bees through to Medina. The loss of bees was almost insignificant, or about two pounds out of twenty colonies.

Weather conditions were favorable. The next carload of bees started on the 19th, and will arrive in Medina on Monday afternoon the 25th. But the weather is extremely warm at this writing, May 20; and if the second car comes in as good condition as the first, we shall be very happy. The hot weather will mean, of course, that Mr. Deyell, who comes with the second car, will have to wet down his bees much oftener. This will be accomplished as explained elsewhere in this issue. The last two cars will start either on the 26th or 29th. There will be one man to each car, but they will move together. If we can get through the last three carloads as well as we did the first, we shall consider our experiments a big success. In the mean time we are awaiting them with some anxiety; for no one can tell what extremely hot weather will do.

As previously explained, we loaded the first car as near the locomotive as we could in order to avoid as much as possible the suffocating gases from the engine in going through tunnels; but in doing this small cinders were scattered all over the hives and throughout the car of bees. A large portion of the cinders sifted through the wire cloth and down into the combs. When we examined some of the hives after being unloaded we found the cells were filled with hundreds of little black cinders. Whether the bees would remove them was the question. A few days afterward we had the satisfaction of seeing the bees taking the cinders out and depositing them on the bottom-boards. At first we were inclined to wire Mr. Marchant to put the remaining cars of bees at the rear end of the train; but we have since concluded that the front end is all right after all.

IMPORTANT REQUISITES FOR MOVING A CAR OF BEES.

In moving bees in car lots it is very important to have all arrangements made in advance. The first thing to settle is the *route.* This should be carefully studied in order to get through freights and direct connection from one road to another. To do this it requires considerable correspondence with the railroad companies. It is not always the shortest cut that will make the quickest delivery. Sometimes it happens that a little out-of-the-way route with through or fast freights and good connections will be much quicker than a more direct route with poor connections. The bees will keep quiet *as long as the train is moving;* but if the car is left standing in a railroad yard for 24 hours during hot weather they may cause serious trouble and loss. When the car is on the way fresh air will, of course, circulate over the hives.

The combs must not be heavy with honey and the colonies must not be strong. A strong colony is almost sure to die before it reaches destination.

It is also very important to get an agreed freight rate from the point of starting to destination. Without this there may be overcharges and no end of trouble.

A special car of suitable size and lumber for platforms must be ordered *before* the bees start. Do not attempt to shut the bees up until a car is secured and on the siding. Next, have your carpenters engaged to put your platform or staging inside of the car. Nothing less than two by four stuff *bolted* together should be used.

Dr. C. C. Miller STRAY STRAWS Marengo, Ill.

SPEAKING of lining up against the saloon, the question is asked, p. 400, "Will the old parties *dare* line up?" Good question. Here's another: "Will Christian men *dare* line up against the old parties if the old parties don't line up against the saloon?"

A HOUSE-GREINER difference of opinion as to "early-raised queens" occurs on page 387. Queens reared by my bees before clover bloom have nearly always proved a disappointment; but since dandelions have become so abundant there have been more successes. Just possibly the Greiner bees may have a better chance for early rearing than the House bees.

OPPOSERS of woman suffrage have objected that, if women had the vote, they would vote just the same as the men. Illinois women refuted that fallacy April 7. Their vote closed a lot of saloons that the male vote would have left open, and made dry some of the larger cities such as Elgin. [Late reports show that women's votes made it possible to put out something over a thousand saloons in Illinois. Speed the day when the women in all the States can vote.—ED.]

M. F. MARKLE tells me that Jews are great honey-users. They make a specialty of certain cakes or cookies made with honey because of their keeping qualities. In general they prefer candied honey for table use. [The Jews are certainly very fond of honey. They dispose of large quantities of honey granulated in the comb, while other peoples regard it with suspicion and will not touch it. The Jews have taught us thrift and finance, and perhaps they can teach us something about eating granulated comb honey. It is really fine eating.—ED.]

THE *Country Gentleman,* p. 838, has a full page on fighting insect enemies, in which the sole reference to bees is in this sentence: "Do not spray trees or plants while in blossom, because of endangering the lives of visiting bees." But that single sentence is magnified many times by a subhead: "Have a Care for the Bees." This goes to show that intelligent horticultural editors are awake to the importance of bees; and a plea from one of them is worth more than a plea from all the bee-editors on the continent. [Our fruit journals and agricultural papers are now very strong against spraying trees while in bloom. As we have before mentioned in these columns, the fruit-growers are waking up to the importance of having bees pollinate their trees; and they are letting the fact be known by asking local beekeepers to put bees on their places.—ED.]

F. GREINER, you're dead right in that good article, p. 386, that there is no better time to rear queens than swarming time, a time selected by Nature. But isn't superseding time just as natural? Please remember that in the natural course *every* queen is superseded, and that by the bees. With me, at least (and I suspect other bees are like mine) that superseding practically always takes place after swarming time is all over. [In this connection we venture the statement that an experienced queen-breeder who understands the art of feeding—that is, of stimulating—can rear just as good queens out of season as during the swarming or supersedure impulse. Said an experienced queen-breeder who has raised thousands and thousands of queens, "I prefer to have no honey coming in; then I have all the conditions under my control; and knowing those conditions I produce the best of queens." And we believe he is right. But the average queens raised by the average person will not be equal to those raised under natural impulses.—ED.]

FOLLOWING the announcement of the Chicago *Record-Herald* of its ban on liquor advertisements, columns have been occupied with endorsement and rejoicing from men, women, and organizations of all sorts. On the other side appears a defense of the liquor business, occupying a column and a half, by the president of the leading high-class(?) liquor firm of Chicago. The greater part of it is occupied with a plea for compensation from government in case the business is closed up—clear proof that the closing up is *expected;* and when those high in the councils of the liquor power expect the end it cannot be so very far away. [If some of the temperance people would take pains to write a courteous letter to the editor of the daily that comes to their home, protesting against the liquor advertisements, and calling attention to the papers that have already dropped them, it would have a telling effect. It is because Christian people and temperance folks generally do not take advantage of the power that lies in their hands that these liquor advertisements continue. If an editor receives a dozen letters a week from his temperance subscribers, and if he has 100,000 names on his list he would begin to think something would happen if he did not eliminate the offending advertising.—ED.]

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.

THE LOCAL MARKET.

The local market has quite a supply of comb and extracted honey still on hand, and some will undoubtedly be carried over. The comb honey has not showed any appreciable signs of granulation. No. 1 and fancy comb honey are retailing now at 10 cents in most of the stores. No. 2 honey sells for 8 1-3 cents, but this is somewhat under weight. The grocers are selling the comb honey for about what the honey cost them in trade, or a little less.

* * *

WHY SWARMS GO TO THE HILLS.

Why issuing swarms almost invariably go to the foothills has been a question for which I have not had a satisfactory answer. This is true of nearly all the apiaries located from one to eight or ten miles of the foothills. Do the bees see the mountains and instinctively go toward them, or do they make toward the hills because the early spring pollen and nectar come from them? The foothills do not furnish any thing like the satisfactory pasturage throughout the season that is to be had from the alfalfa-fields, but perhaps the bees size up the situation by the early indications.

* * *

WE WANT IT DRY.

The editor, in the May 1st issue, says that the Weather Bureau reports that an extremely wet season is likely to be followed by a dry one. We have had the wet season here, and we hope that this season will be hot and dry. Of course, we shall not hope it will be dry in the East. But it is this way: Up in our mountains are millions of tons of frozen and packed snow—ice is really what much of it is. The "woods" are full of it up near the timber-line, and much of this will not melt and come down to furnish water for irrigation unless we have hot, dry weather in July and August. We generally like to have one or two good rains in July and August; but it so often turns cold after a rain that we do not wish for much rain in Colorado.

* * *

PROSPECTS UP TO DATE.

To date, May 9, we have had something over seven inches of precipitation since January 1—over two inches above normal. Apple orchards are just coming into bloom, and dandelions have been furnishing nectar for about a week. Some of our colonies have made preparations for swarming, and we are bound to have some swarms during fruit-bloom. Two weeks more and the danger of alfalfa being frozen back will be over. If we have no freeze, alfalfa should be in bloom by the first week in June. Extra supers of drawn combs have been put on thirty or more colonies, and another week will see more than one hundred more go on. Colonies are at least 25 per cent stronger at this date than last year; but I think there is less honey in the hives.

* * *

CELLAR WINTERING IN THE WEST.

I have received several favorable reports from Colorado and Wyoming of bees wintering very successfully in cellars. We have very changeable winter weather in the inter-mountain regions, and it would not surprise me to see cellar wintering receive quite an impetus in the next ten years. There is one thing that augurs well for it, and that is that it is easy to keep cellars dry in most places. The most serious trouble I would think would be in keeping the cellar cool enough during some of the warm weather we have some winters.

* * *

WHEN IS A COLONY INSPECTED?

That report of apiàry inspection in Arizona brings up again the question of what constitutes the inspection of a colony of bees. To me it seems that the inspection should be thorough enough so that any discernible evidences of foul brood will be found. I consider that an examination of all the combs with brood in them, and all the empty brood-combs for the dried scales, constitutes a thorough inspection. With the small amount of money available in most States for apiary inspection I do not think it advisable to inspect every hive in an apiary unless there is disease found there or unless there is considerable disease in the neighborhood. The competence and ability of the owner will be a factor too. It is not right for the intelligent beekeepers to demand the inspection of all their bees each year by the inspector. I have been called upon to inspect an apiary, and instructed to bring along scissors to clip the queens. It is possible to inspect 100 colonies a day if they are located in large apiaries. I inspected 140 colonies one day, but the owner worked with me, removing cover, cloth, and follower-board, and replacing them when I was through. The average number of colonies inspected in a day by the inspectors in Colorado would probably be 35 to 50.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

March borrowed some fine days from April, and in return gave April some of her own kind. The past two weeks have not been weather that makes the beeman glad, and the week now ending (April 30) has been one that would try the patience of Job had he been a beekeeper. Think of the maximum temperature on April 29 being only 50 degrees! There has been a great storm on in the southern part of the State, one of unusual note, in that the rainfall in the interior foothill region was very heavy, reaching a total of 2½ inches in the San Bernardino Valley, gradually becoming less until in the coast region it amounted to nothing. There is no question but that the quantity of honey from the button sage will be less than it would have been had the weather continued fair. That the flow from the white sage, buckwheat, and later-blooming plants will be materially increased in this section seems probable, the ground being thoroughly soaked to a good depth. The blooming period of the button sage may be prolonged, but it has only a short time longer to bloom at best.

* * *

Referring to the editorial, page 281, April 15, "More expensive to winter bees in the South than in the North," I think that there is food for thought on this subject, and our California beekeepers can study it with profit—not alone the exact text, but also the quantity of stores necessary to keep colonies in good condition through the winter with an additional amount sufficient to tide them over through the seasons of dearth. For such seasons come, and invariably they spell disaster to many of our beemen because they provide only for the winter. These seasons of extreme dearth are nearly always followed by a good honey-flow when the bees are apt to be in the worst shape to gather it. That is the condition that prevails in California to-day—a good honey-flow and a small amount of bees to gather it.

There are so many reasons why plenty of stores should be left on the hive that I will not attempt to discuss them all; but the fact remains that, of all things that cause the heavy loss of colonies during seasons of dearth, the influence of lack of stores is the chief cause. Mr. O. O. Poppleton is quoted in the above-mentioned editorial as saying, "My problem is not so much to encourage brood-rearing as to keep it down." In this respect we differ to some extent, for the problem with us is generally to induce sufficient breeding in the autumn to supply young bees to give the bees a good start in the spring, before they are worn out by age. Plenty of stores are advisable under almost all conditions in which the rearing of brood figures. I have followed closely the condition of stores of my colonies through the winter of 1912, and on down the long dry summer, following with an eye to ascertain the condition of the colonies that give the best account of themselves. Invariably I find that the colony having the greatest amount of stores is the one to respond most quickly to the influence of some pollen-producing plant that came into bloom without nectar. To my notion pollen is the greatest breeding stimulant of all. Yet pollen alone in time of a dearth is not sufficient to induce breeding if there is a shortage of old honey. With an ample supply of old honey at hand the response is noticeable immediately.

The same may be said of stimulative feeding. Colonies with ample stores will respond more quickly to stimulative feeding than those with a very limited amount. This is especially true in the winter and fall, for nature seems to spur the bees on to take greater risks in the spring than at any other time of the year. My heaviest colonies during the past summer carried from forty to fifty pounds of honey. These were not only the strongest in stores but also in bees. In the fall I began dividing their stores among those having from nothing to a very small supply. They were also low in bee force. When through dividing I had sufficient stores on all colonies to tide them over until spring, but those from which I took the stores were the heaviest in bee force, and are to-day. It is from them that I am now getting my heaviest surplus. I might modify the above to cover a few colonies that had old queens that were not able to bring their colonies to their best. I have had the quickest and most satisfactory response to stimulative feeding where fed in the open, with a ten-per-cent-sugar syrup. This seems to excite them to breeding in a more natural way, as the active outdoor flight and the thin syrup being carried into the hive, so much like nature's way, gives the entire yard a more natural activity. Much honey is required to produce young bees, and this should be figured on every year when leaving the supply of stores, for the following season may or may not give sufficient stores, and on this account it is always best to be on the safe side.

J. L. Byer, NOTES FROM CANADA Mt. Joy, Ont.

Bees have wintered well in Ontario so far as I have learned from the reports sent me. Although the weather, as I have mentioned, has been generally cool, yet the bees seem to have built up nicely so far. On the 7th of May, toward evening, I noticed two colonies at the home yard with small clusters outside of the packing-cases. Early in the day they had been working on pussy willows. These were two eight-frame L. hives heavily fed last winter; and as they were strong colonies with young queens, no doubt the smaller hives explain the crowding outside. Clustering so early is unusual in my experience; and, needless to say, those two colonies will need attention as soon as any nectar comes in.

* * *

At this date, May 11, hard maple and willows are just opening, and dandelion is making quite a showing on protected southern slopes, so in spite of the cool weather we had earlier, the spring is about on normal time so far as vegetation is concerned. So far, bees have had very few days to gather pollen; for, although we have had little freezing for some time, cool weather has been the rule. In the May 1st issue it is stated editorially that there has been a heavy precipitation of snow and rain almost all over the United States and Canada; but that certainly does not apply to our section in the vicinity of Toronto. We had very little snow all winter, and this spring we have not had a real rain yet. Around London and other western Ontario points I understand they have had heavy rains, so it looks as though that section will be favored again for another season. But we may all get all the rain we need yet; and instead of looking for a drouth, as the editor mentions, we are rather expecting wet weather, as one extreme generally follows another.

* * *

Judging from the heavy correspondence I have received in connection with an article written in another journal, regarding the question of overproduction, there is no question in my mind but that the great majority of the large producers (people who depend upon beekeeping for a living) honestly think that such a thing is not only possible but probable in the near future. Looking at the question in an unprejudiced way, I think it must be admitted that beekeepers are often too anxious to tell of their successes, when, on the other hand, we do not hear of the failures so frequently. A number have written me, suggesting that it would be a good thing for all concerned. for both producers and prospective beekeepers, if the occasional large crops produced were never published in the journals. There may be something in this, as there is no question but that some see "easy money" in these big reports, only to find out later that they have overlooked the reports of total failures that go with the calling just as surely as an occasional big yield.

* * *

CRUSTED SNOW DOES NO HARM IF THERE IS VENTILATION AT THE TOP THROUGH THE PACKING.

Some time ago I drove eight miles to the Altona apiary to bring home three barrels of cappings to be melted up. At this yard the snow always drifts over the hives more than at any of our other apiaries, owing to the hives being in an orchard surrounded on three sides by high evergreens. These trees catch the snow just enough to drop it over the hives when it is blown in the orchard, and as a rule the hives will have lots of the beautiful around and over them, when there will be little at the other places. On this trip I found conditions as described. As we had a heavy shower the night before the trip, followed by a cold snap, of course the snow had a very heavy crust over it. Just for curiosity I got a shovel and dug down to the entrances of four colonies, the snow being about on a level with the cases—some 30 inches deep. In front of each entrance there was a hole in the snow as large as my head, it having been melted away by the heat from the bees. I carefully lifted off the top of one case, turned back the packing, and rolled up one corner of the quilt. The bees were very quiet, so I left snow around the other cases, believing the bees were in better condition than they would be if I dug away all that snow with the crust on, for, no matter how careful I would have been, there would have been more or less disturbance, and bees would have left the hives, as the sun was shining brightly. But please bear in mind these colonies all have quilts over the frames, and there is an airspace between the packing and the tops of the outside cases. If sealed covers were over the bees, I should be afraid of snow over them; but with the other plan, it is an altogether different proposition.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

"SHOOK" SWARMING AND SECTION HONEY.

Mr. G. W. Babcock, Brockport, N. Y., writes that he considers the "Doolittle plan" of shook swarming the best of any so far given to the public because by this plan all after-swarms are done away with, the new colony does well, and the colony in the parent hive on top can be absorbed by the new colony, or it can be set off, given a new queen, and thus made into a good stock colony for the next season. He says that he has obviated the only trouble which he himself and others have found with that plan, by using what he styles a "gauze board," the same being a thin board with an eight-inch-square hole through the center covered with wire screen. There is also a hole near the front end which will allow two or three bees to go down at a time to the colony below. This gauze board is for the purpose of allowing the heat from the colony below to come up into the brood from which the bees were shaken, now on top, so that there will be no chilling of the same, as some find to be the case where enameled cloth is used as was given in an article of mine written some fifteen years ago.

During the past I have used the old Langstroth honey-board which had six openings through it, to correspond to the openings in six honey-boxes, these openings being about one inch wide by five long, the same being covered with window-screen wire; and I have also used a rim of the same size of the hive with the whole surface covered with wire cloth, the same being put on top of a strong colony when it was to receive the beeless brood from another colony.[*]

Some of these boards were used with a hole in the end next to the entrance of the hive. Then, when working for section honey on the shook-swarming plan, the bees emerging from the brood above could run down through this hole and through the space made by wedging the sections together to the colony below, so that they could fly from the entrance when they go out for the first time to take their airing. This hole in the wire cloth was fitted with a queen-cell protector, point down, so that it was easy for the bees from above to run down to the colony below. Many would not find their way back through the small hole in the lower end; and in this way, at the end of 24 days, the upper hive could be taken off with few bees and little honey, while these emerging bees from the brood above kept the colony in good strength for storing honey in the sections in much better strength than in case of a natural swarm, as with such swarm fully a third if not a half of the bees in the swarm would die of old age before any young bees would emerge to give strength to the colony.

How did it turn out? The sections were filled and completed as was expected; but, alas! the dirt and bits of cell cappings gnawed off by the emerging brood rattled down through the wire cloth and were mixed in with the sealing of the honey to such an extent that nice clover and basswood honey would not bring the price of good sections of buckwheat, and much more profit was obtained from prime swarms on the old plan than was secured from this third greater yield of miserable-looking sections.

Next I tried making wide frames with tight tops to hold the sections, hoping that enough heat might come up through the space made by the wedges so that no harm would come to the brood should a cold spell come on immediately after shaking. This kept the brood all right, but allowed so large a space for the bees to go up, as well as down, that when all the brood had emerged I had these brood-combs pretty well filled with honey, and the sections not so well advanced as by the old way.

After this I used the open-topped sections, and over these spread a sheet of enameled cloth, the same having a hole in it above the space made by the wedges, the cell protector being used point down, as was done when the wire cloth was used. This plan gave the best results of any thing up to that time, as much more heat would come up through this sheet of enameled cloth by way of the openings, where the open-top sections were used than was the case with the closed-top wide frames. But sometimes there was a loss of brood, as Mr. B. says.

Next I went about perfecting the plan as given in the book "Management of Outapiaries," which not only makes shook swarming a success, but puts every pound of honey, not consumed by the bees, in the sections, in good marketable shape.

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[*] Here let me say that there is no "absolutely sure" plan of introducing a queen equal to turning her and her attendants loose in a hive of beeless brood so placed over a strong colony. A laying queen taken from one hive to another in the same apiary can generally be introduced by almost any plan; but a valuable queen which has come through the mails is too often missing when the majority of the so-called *safe* plans of introduction are used. Of course, in such introduction with beeless brood there should be no holes anywhere from this upper hive where a *single* bee can get either out or in. After six days this hive should be set on the stand it is to occupy.

GENERAL CORRESPONDENCE

MOVING BEES FROM OHIO TO FLORIDA AND BACK

BY H. H. ROOT

In this special number on moving bees a few remarks regarding our experiences in transporting them by rail and by boat on the way to Apalachicola, Florida, may be appropriate. The universal opinion of all those who have had any thing to do with moving bees is that it is the unexpected that always happens. So far as is possible, therefore, it is wise to make provision for taking care of unusual calamities—in other words, to expect the unexpected.

The illustrations in our December 15th issue show how we prepared the hives for the long journey. We use two screen boards in hot weather, one over the hive and the other under it. Being made of ⅞-inch cleats, there is nearly an inch under the frames and over an inch above. In cool weather an ordinary deep bottom-board with screened entrance may be used instead of the lower screen. However, it must be remembered that we locate the hives so that every one of them can be reached, and we provide plenty of water, as will be explained more fully later on, to keep down the temperature in case the bees are suffering. During a conversation with Mr. C. H. Clute, of Palmetto, Florida, who, by the way, has done considerable moving of bees by rail, I found that he places a framework at least three inches deep under the brood-chambers, and he thinks that he gets better results by so doing, as any bees which may die *en route* fall down from the combs out of the way, and there is less danger of suffocation. This takes considerably more room, however, than the plan we use, and we have had such excellent results that we do not see how we could better it. The two screen boards securely held by crate staples prevent any possibility of bees getting out, and they afford plenty of room and ventilation.

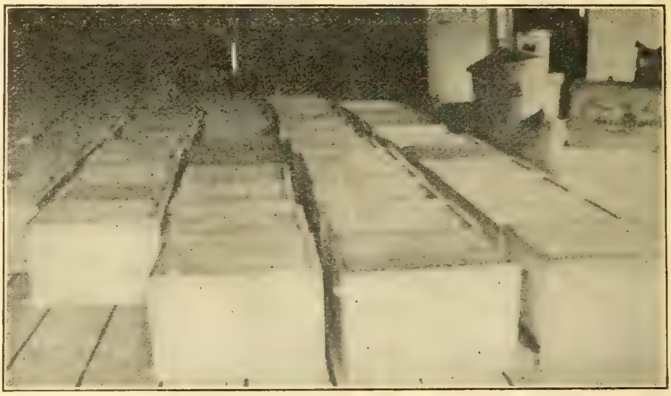

Fig. 1.—The bees in the freight house at Bainbridge, waiting to be loaded on the steamer.

After the difficulties under which we worked in hauling the hives out of four feet of snow when we got ready to load them last November, as reported in the December 15th issue, when the train with its car of bees finally started we fondly hoped that our troubles for this one trip might be over. *Our* troubles were over, but not so with Mr. Marchant, with the car. In this car we had tried a new

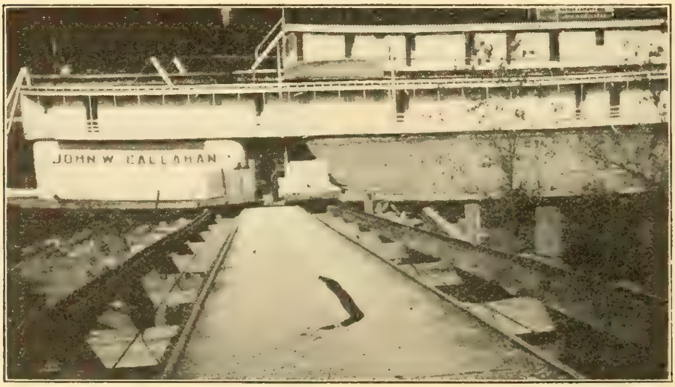

Fig. 2.—The steamer which carried the bees from Bainbridge to Randlett's Landing.

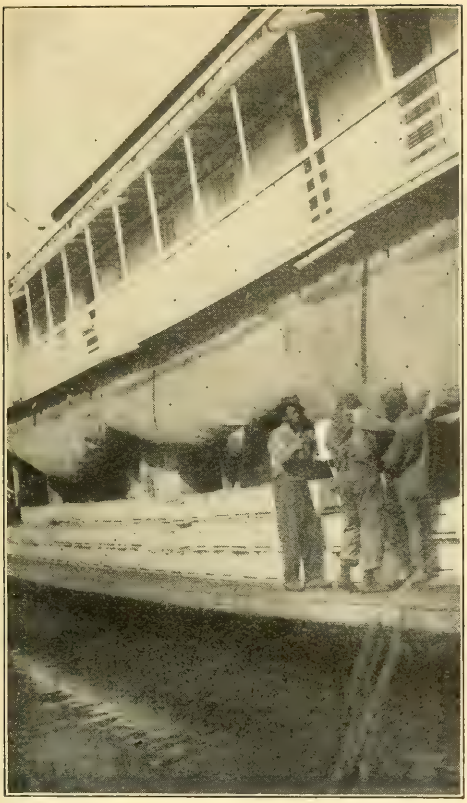

Fig. 3.—Loading the bees on the steamer.

plan; and instead of a solid framework from the door to the ends of the car to support the rows of hives, we made three separate tiers which were put together before being placed in the car, our idea being that, after the bees were unloaded, this framework could be taken out in three parts and used again when the bees were to be shipped north. The plan did not work well, however, for the framework was not as rigid as it should have been, and there was considerable trouble all along the way, owing to parts working loose. Mr. Marchant wrote afterward that his hands were bleeding most of the time owing to pounding his fingers when attempting to drive nails while the car was in motion. At Birmingham, Alabama, the staging gave way to such an extent that it became absolutely necessary to unload a large number of the colonies in the railroad yard, and make repairs. Unloading a car is no small task at any time; but in the midst of a busy railroad yard, with trains switching back and forth constantly, and with barely enough room for a man to stand between tracks, the problem becomes a serious one. However, room was finally made for the hives to be piled up while the staging was repaired, and, finally, when every thing was ready again, the last lap of the journey by rail was undertaken without further mishap. At Bainbridge, Georgia, the car was unloaded, and the colonies located on the floor of the freight-house, awaiting the steamer. The railroad freight-house being located very close to the river, there was no need of a transfer. Fig. 1 shows a part of the outfit in the freight-house, and Fig. 2 the two tracks for the

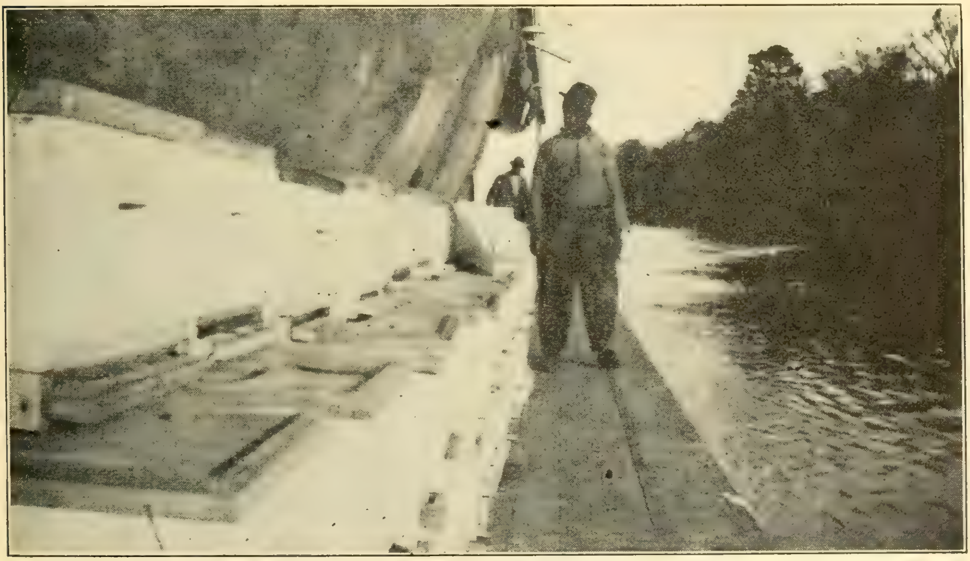

Fig. 4.—On the boat down the Apalachicola River, between Bainbridge and Randlett's Landing.

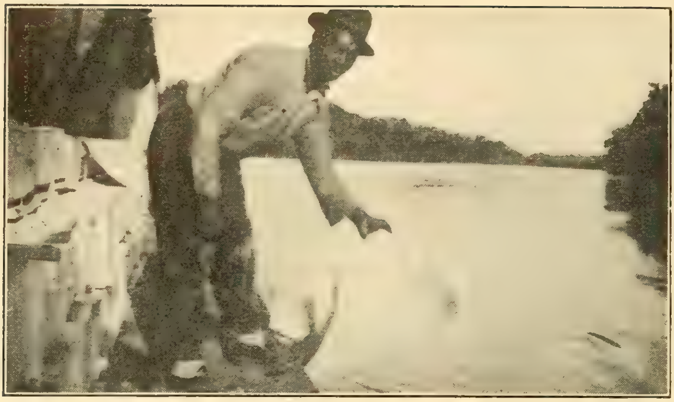

Fig. 5.—Wetting cloths to quiet the bees.

cars, which are pulled up and down by the cables, taking freight to and from the boat. Fig. 3 shows some of the negro deck hands carrying the hives on to the boat. This boat by the way, like many other river boats, is a stern-wheeler, the deck being flat, as shown in Fig. 4, without a railing, so that the work of loading and unloading is reduced to a minimum. The boat can be pushed up into the bank to make a landing anywhere, the great paddlewheel which drives it meanwhile remaining out in the deep water. It has been suggested by some that moving by steamer is a difficult proposition. This is true in case of large lake or ocean steamers in which the bees have to be placed down in a dark poorly ventilated hold; but there is little trouble in moving on one of these flat river boats. If the sun becomes too hot, the canvas side curtains or tarpaulin may be unrolled, as shown in Fig. 3, and if the bees show any signs of becoming overheated, cloths may be wet by dragging them in the water and placing them over the hives to keep down the temperature—Figs. 5 and 6.

Providing water to quiet the bees while being moved by rail is a much more difficult proposition. As stated in the editorial in our last issue, several barrels may be required for a carload of bees shipped, say, a thousand miles. We generally provide one (preferably two) barrels of water at the start, and we fill these at every opportunity, or as occasion demands.

We have tried many different schemes for wetting the bees. At first we used dippers, having the hives arranged so that the wire screen over the top of each one could be reached. This is a slow method, however, and much water is likely to be wasted; for if it is poured on the screen, the bees get too much at a time, and they are likely to suffer before more can be given. We also tried hand spray-pumps which could be used to direct a spray of water at each screen. By adjusting the nozzle so that the water is carried in an exceedingly fine spray, almost in the form of vapor, there is not much danger of wasting the water, and a few strokes suffice to cause the whole screen to drip. This worked much better than a dipper; but Mr. Marchant prefers to get rolls of cloth which can be unrolled over the hives at will. The cloth, if dry, serves as a protection from the cold if the temperature falls pretty low; or during extremely hot weather, if the bees are suffering, it furnishes an excellent means of providing water, for the water may be quickly applied to the cloth, and the bees take it more slowly than in any other way, so that it does more good. The cold wet cloth over the screen is a great help when bees have to be shipped in extremely hot weather.

MOVING NUCLEI FROM RANDLETT'S LANDING TO FORT GADSKY.

Before shipping the bees north Mr. Marchant formed five hundred nuclei in special

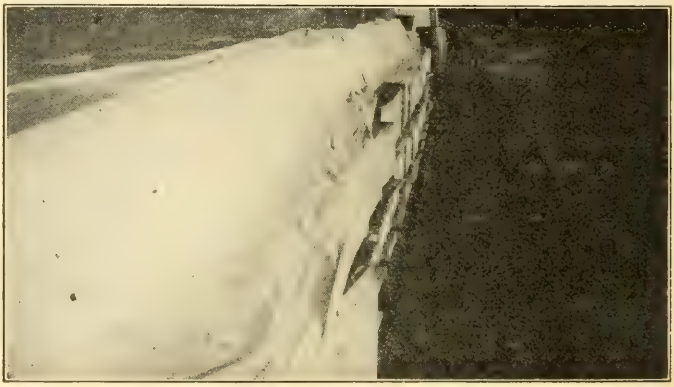

Fig. 6.—Wet cloths over the bees on the boat.

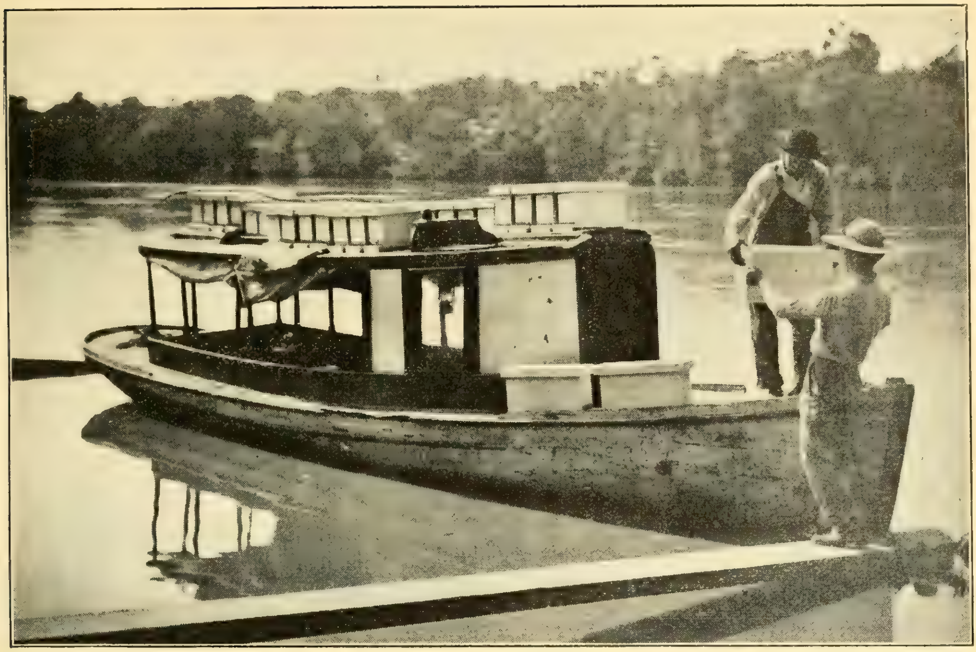

Fig. 7.—Loading three-frame nuclei on the launch preparatory to the trip five miles up the river to the Nucleus yard. The cover picture for this issue shows the boat loaded and under way.

three-frame hives, moving them fifty at a time five miles up the river to a beautiful spot on the bank that is as level as a table. We shall have a view of this nucleus yard in GLEANINGS shortly, for it makes a beautiful picture. Fig. 7 shows the launch partly loaded with these three-frame nuclei. Our cover picture for this issue shows the launch with its load under way.

Of all the conveniences for moving bees—wagons, sleds, train, or boat—the boat, if of the river type shown in the photograph, is by far the most satisfactory. There is very little jar, nothing has to be done along the line of bracing the hives, and protection either from the heat or the cold can be easily provided. Of course, moving by boat in rough water on a lake or on the ocean is an entirely different proposition.

Moving by rail is the most nerve-wearing of all; and yet, in spite of exasperating delays of trains that are sometimes unavoidable, more real serious accidents no doubt occur when bees are moved by wagon, for it takes a pretty good horse to keep his head if he happens to be stung a few times. We presume more *bees* are lost when moving by rail; but there are surely more accidents and narrow escapes from actual loss of life when moving by horse and wagon. In the latter instance, if in no other, it certainly pays to prepare for the unexpected.

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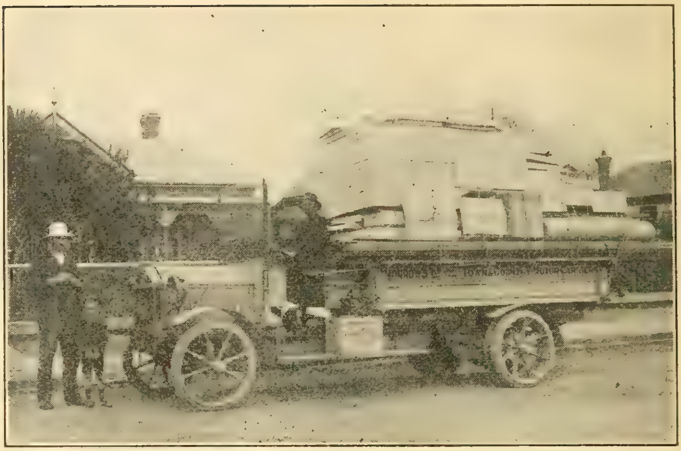
MOVING IN NEW ZEALAND BY MOTOR TRUCK

BY E. G. WARD

At the end of last season I owned 35 colonies of bees which were spread out in three locations. About half were at my home in Christchurch, and the remainder in two equal lots about five miles away. One season of this kind of management convinced me that it was not a paying proposition, so I decided to get the bees together in a good country district. I was fortunate in securing a location in a good clover district, and I have a nice little apiary established. The bees were loaded in the bottom of a motor truck, and the supers, etc., piled on top. The tops of the hives were covered with a frame of wire cloth, and the entrances closed in with the same material full width. I had the misfortune to lose three of the best colonies by suffocation. These three colonies were in nine-frame hives, and very strong; and, although there was plenty



E. G. Ward's bees and appliances loaded into an auto truck ready for a 30-mile trip to a new location.

of air on top, it was evident that 3/8 by the full width of the hive was not enough for the bottom.

The season has been rather below the average, and the weather very erratic. The flow was three weeks to a month later than usual in starting, and weather was not settled till the flow was past. Notwithstanding the drawbacks, I have secured a fair crop. I have increased from 31 to 68 colonies, including 7 or 8 swarms from other bees I had charge of; 14 of these are nuclei, and are in good shape for next season. I have extracted 3200 lbs. of honey, and secured about 5 dozen sections and reared about 40 queens by the Doolittle plan. The six best colonies gave 1121 lbs. of extracted honey. All the queens were introduced by the smoke method, and I am so well satisfied with it that I am not likely to try any other unless it should be a very valuable queen, and in that case I would use hatching brood. Every queen was accepted; but in about 8 or 10 cases they were superseded after being in the hive about a fortnight. I use the small nucleus hive (three to Langstroth frame), and have had good results and no trouble.

Christchurch, N. Z.

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FROM OLD TO NEW

A Glimpse Backward at Beekeeping in Palestine Years Ago, and Something about Modern Beekeeping in France Today; Moving Bees on Camels and on the Heads of Native Women

BY PH. J. BALDENSPERGER

[We feel sure that the older readers of GLEANINGS will not need an introduction to the writer of this article, Mr. Ph. J. Baldensperger; and we feel equally sure that our younger readers will not be sorry to be introduced to this interesting author, traveler, and beekeeper. He has been a constant reader of GLEANINGS for 33 years, and from 1880 to 1890 was a frequent contributor to our columns, from the Holy Land. His articles were always welcome and instructive. Since Mr. Baldensperger's residence in Nice, France, we have not heard so much from him; but this article leads us to believe that the pleasant acquaintance of years ago is about to be renewed; and if so, our readers are to be congratulated. The first photo represents the father of this interesting family. One brother was drowned at Jaffa, in the Mediterranean, July 26, 1891.—ED.]

Years ago, when father Langstroth tried his new bar-frame hives, and the beekeepers were getting away from old methods, my father owned hives of the most old-fashioned shapes, under archways in the castle above the Gardens of Solomon—the Ain Rimmon of the Bible—the modern Urtas, near Bethlehem. The Bedouin incursions forced the inhabitants of the exposed village to hide behind the walls of the Saracenic castle, where a soldier or two lived to guard the water, which ought to have been conducted to the Dome of the Rock, on the site of the Temple at Jerusalem. The pear-shaped hives, prepared in the potteries of Hebron or Jerusalem, were the only ones then known to us. Born in the Holy Land, we knew nothing of the great strides made in more civilized countries till English and American travelers in the seventies showed us the new methods. Till then, beekeeping consisted in buying terra-cotta hives in the markets, gathering the swarms, and cutting out the honey. A terra-cotta smoker filled with manure, into which a burning coal was introduced, was used, the beekeeper blowing on the manure and on the bees. The hives, placed above each other, and plastered together under an arch to protect them against rain and sunshine, remained for ever so long a period—perhaps centuries—undisturbed.

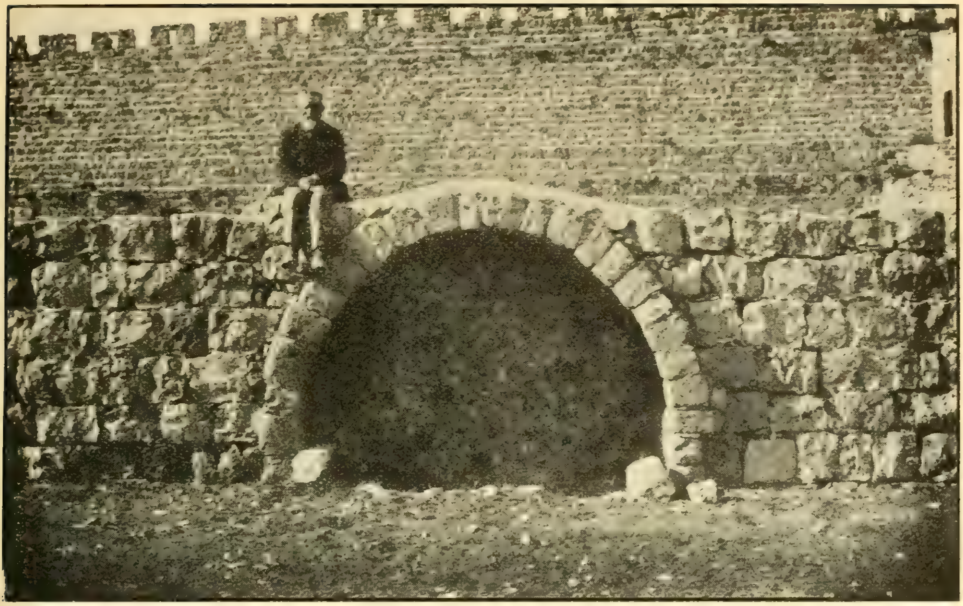


Fig. 1.—The elder Baldensperger sitting on the arch over the old hives in Solomon's castle.

Our first apiaries, in the old castle of Solomon (Fig. 1), stuck up against the walls, had a passage behind for the extracting of honey. To see the bees at work, or to brush away reptiles and other vermin, and inspect them from the outside, we had to climb along the protruding stones of the castle to reach them—Fig. 2. Of course the old methods gave little returns compared with what we get now; but the expenses in the olden days were also reduced to almost nothing.

The arches and the castle were not private property, and no one knew to whom they belonged. Bees have been there for generations, and the owner of the bees was also owner of the whole. The old police agent, a Kurdish cavalryman, did not care nor know who was the real owner, and matters passed along in the most primitive ways. The different archways often had different owners; hives were bought and sold on the spot, and thus changed hands; but still one partner was always the same old man—one who had learned beekeeping in patriarchal ways, and was the patriarch of the whole fraternity. When an archway containing some 70 to 80 hives gave a return of 300 to 500 pounds of honey and about 50 pounds of wax, it was considered quite a good affair. The police agent received a few pounds of honey, and all was said and done till next year's harvest. The swarming season being only work, the police agent cared little for the proceedings. The highly flavored thyme honey of the mountains of Judah (same as Hymettus honey) being from the same flowers, fetched about 85 cents for 6½ pounds. Expenses, except for the transportation of empty jars, and carrying away the filled ones, were greatly reduced, as bees were never moved, stuck in as they were for generations, and probably they will remain there as long as the owners, now fellahin of Bethlehem and Urtas, continue their old ways.

Our attention was called to new methods by the *British Bee Journal*, but was further developed by GLEANINGS about 1880, and since then GLEANINGS and Mr. Root's articles have been in our homes, whether in Palestine, Algeria, or France; also smokers, extractors, comb-foundation machines, either direct or indirect, by way of Paris, are still the only ones used, and will be, till better ones can be produced.

When the bar-frames were adopted the arches were abandoned to the fellahin, and field apiculture was introduced by the Baldensperger brothers. As roads were yet scarce, or at all events led only along the highways to Jerusalem, Jaffa, Bethlehem, Hebron, etc., bees were carried to and fro on camelback. Often the indolent drivers had to be looked for at the fairs in some small town, where also terra-cotta hives were for sale. But the first transportations of movable and bar-frame hives were effected on the heads of women who were also recruited in the market. The first move,

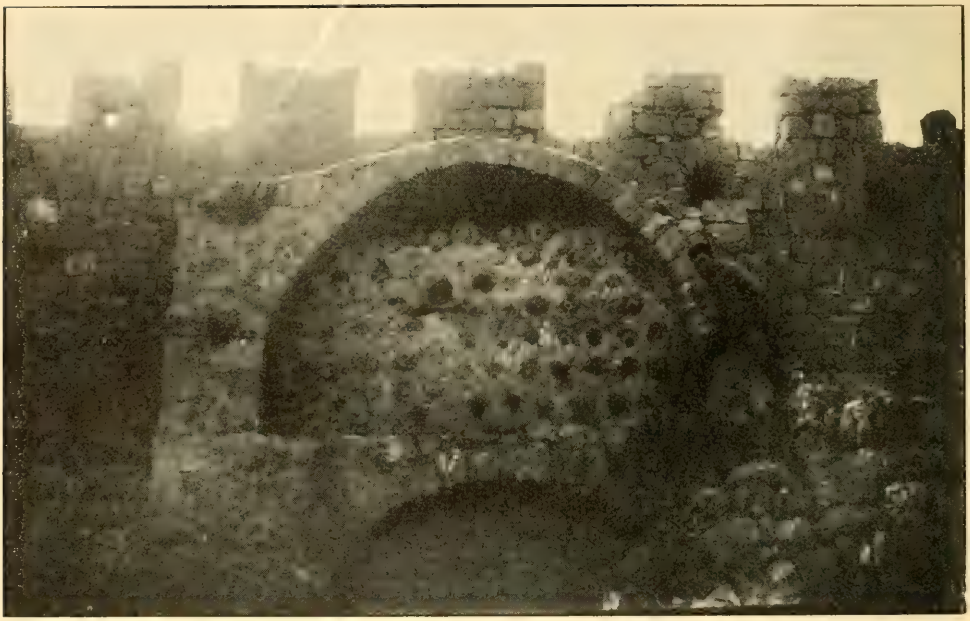


Fig. 2.—Henry Baldensperger (a son of the writer) climbing along the old wall to see the bees.

over thirty years ago, from Ramleh to Jaffa, to the orange-groves, was carried out by women who carried the heavy hives ten miles on their heads. Each woman was paid 10 cents for the work. Later on, camels were hired, and two packages of four hives were carried by each animal, amounting to 500 or 600 lbs. in weight. As a camel goes slowly (about 2½ miles an hour) they were paid between 45 and 85 cts. per night, as it was not only dangerous for man and beast to travel by day, but also bad for the bees, they being in danger of being smothered. Some adventures were related in GLEANINGS away back in the '80's.

When the summer was over, the bees were carried back to the plains in the same way they were taken up to Judea; and the honey in tins holding about 50 pounds was also loaded on camelback. Hives of the old system rendered 5 to 6 lbs. of honey; but the new hives often gave over 100 pounds each, so not only many were scared by the enormous amounts of honey which were extracted, recalling the well-deserved title of a "land flowing with milk and honey," but officials laid higher taxes on hives, and beekeeping was on the point of becoming paralyzed; and, moreover, the honey market was as yet very unsettled. Small quantities could still be sold at the old price of 85 cts. a bottle, but thousands of pounds found no buyers. All innovations are difficult to introduce; but more so in a primitive country where the retrograde masses looked on the quantities produced with great mistrust. Thus for months and months the best honey imaginable lay there, and prospects were dreary—no hope for getting any thing in return for the work and expense laid out. With great patience and much sacrifice a market was opened, when some of us resolved not to continue the struggle, and decided to leave the country.

The orange blossom in Jaffa and the prickly pear gave the first harvest in April and May. Then the bees left for the mountains, Fig. 4.

In those happy days for the keeping of bees no kind of bee-disease was known to us, and this greatly simplified the work, provided the queens laid and were in good condition. Wax-moths attacked very vigorously the empty comb; but sulphur fumes during the hot months protected the precious combs. Hornets may be said to have been the great pest from August to the first rains, October and November, when the rains drowned them in their underground nests. If the rains were too late the damage was great.

For many of the above reasons, and some additional ones, I moved to France, where a part of the Oriental plagues have disappeared; but civilization has also its plague. Here are no hornets nor slow camels tramping 2½ miles an hour—no hadjiis wishing to kneel down and pray when work was

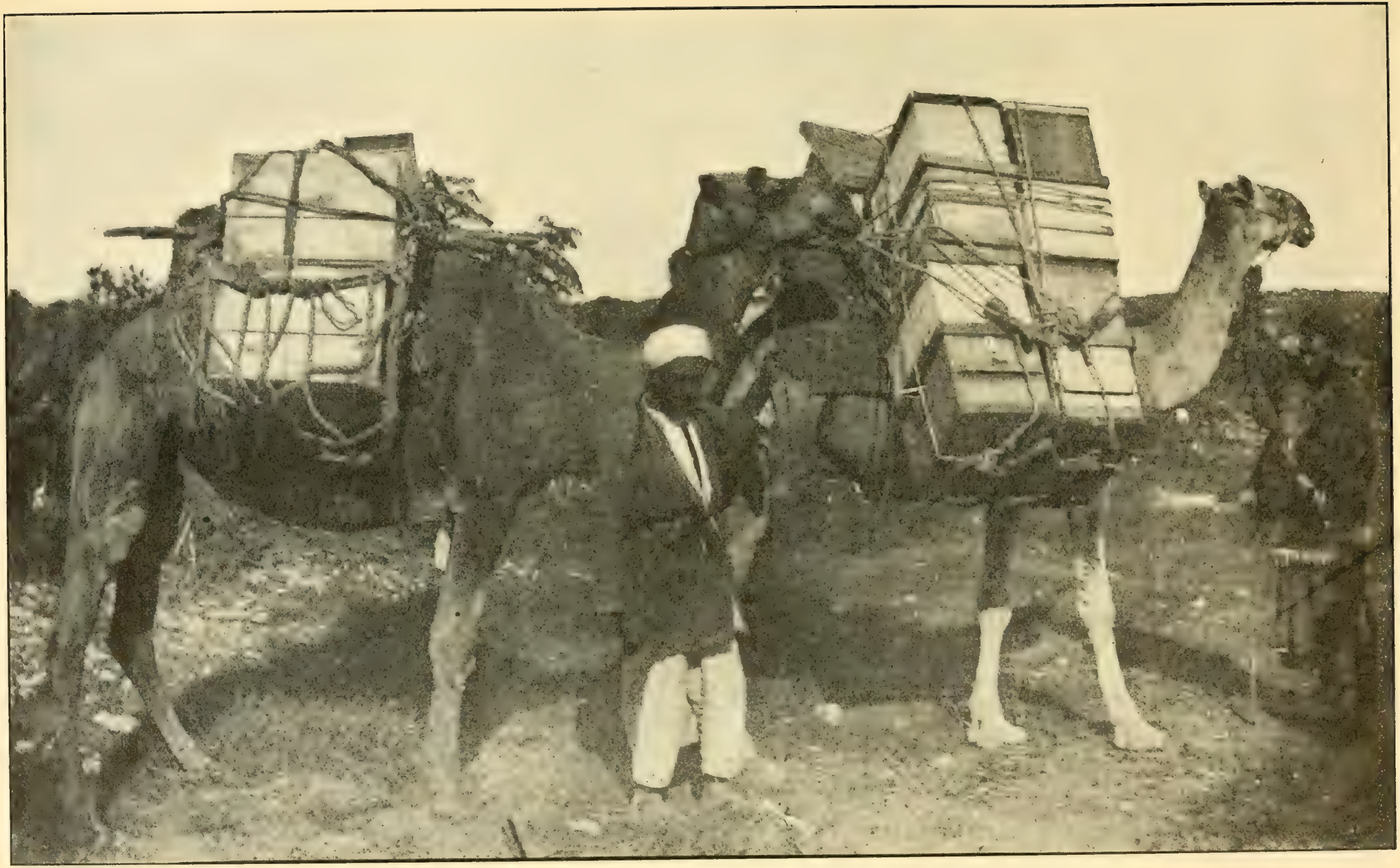


Fig. 3.—Moving bees in Palestine. One of the camels carrying a load of hives and the other a load of honey.

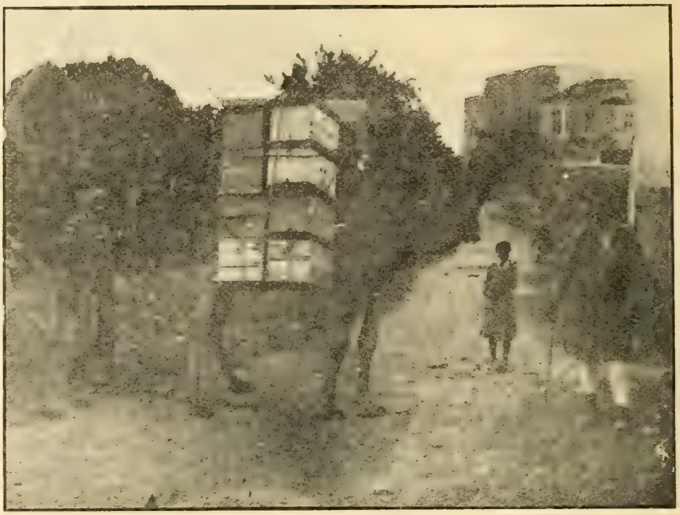


Fig. 4.—Camel carrying a load of bees through the lanes of Jaffa; gardens lined with prickly pears (cactus), and orange-trees behind.

most pressing; but other pests spring up. Instead of the camel the hives are set on carts, Fig. 5, and the bees travel from Nice to the Alps and back again at a greater speed. Honey finds a more ready market, but here another enemy has to be fought. In Mohammedan countries no fermented drinks are allowed. Honey is more freely taken; but here, wine and other drinks take the place of that most precious gift of natural sweet, presented naturally. Our best patrons are vegetarians and anti-alcohol societies; and as an outcome of the stupid belief that wine gives strength, our bees are persecuted wherever there are vineyards. Peasants are very keen for their interests against every other man; but when a bee hovers over a ripe grape or over injured berries to suck the sweet liquid, exaggeration comes in, and our bees are accused of ruining the whole vineyard. No lectures or demonstrations can be strong enough to reassure the ignorant and show them the folly of their theories. They have no other idea of the natural history of the bee than that their wine production is diminished by the presence of an apiary in the vicinity. I have seen bees crawling about the uninjured fruit for weeks, yet never touching a berry; but what is that to them? Fertilization of fruit-trees by bees and the like is looked on as a fable or at least not worth the trouble. So in spite of all advantages our hardships are still great, and we look for the wildest sites, " where every prospect pleases," up in the Alps, and there we pick out the best even places to set our hives here and there among the brushwood, stones, and other things, Fig. 6. Very often it is in places where it is so steep you would be tempted " to have to saw off one leg and splice it to the other " (see Gleanings, cover, Sept. 1, 1913).

Though some beekeepers can handle their bees with very little smoke, I use plenty of it with a good " Conqueror " smoker, and am sure to be left alone by the bees, as now for years I have not taken a veil to handle the hundreds of colonies spread about in many out-apiaries in the Alps. I believe in plenty of smoke, so I take olive twigs or fig wood, or any that happens to be near that is not obnoxious to the bees, and has no bad odor for me.

We can not boast of being rid of that most

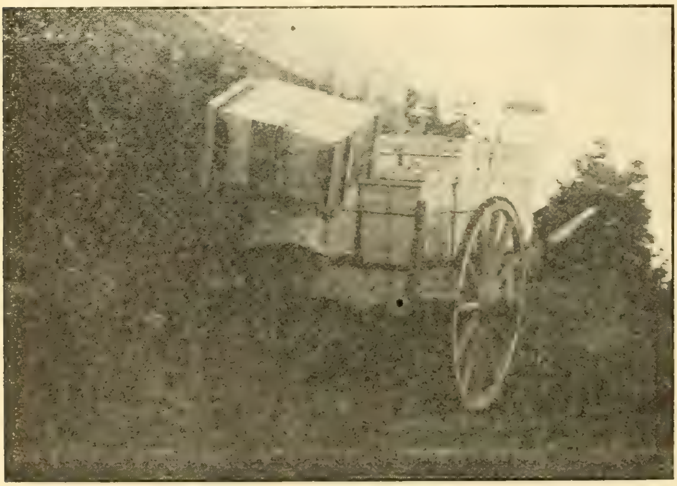


Fig. 5.—Loading hives on a cart in France.

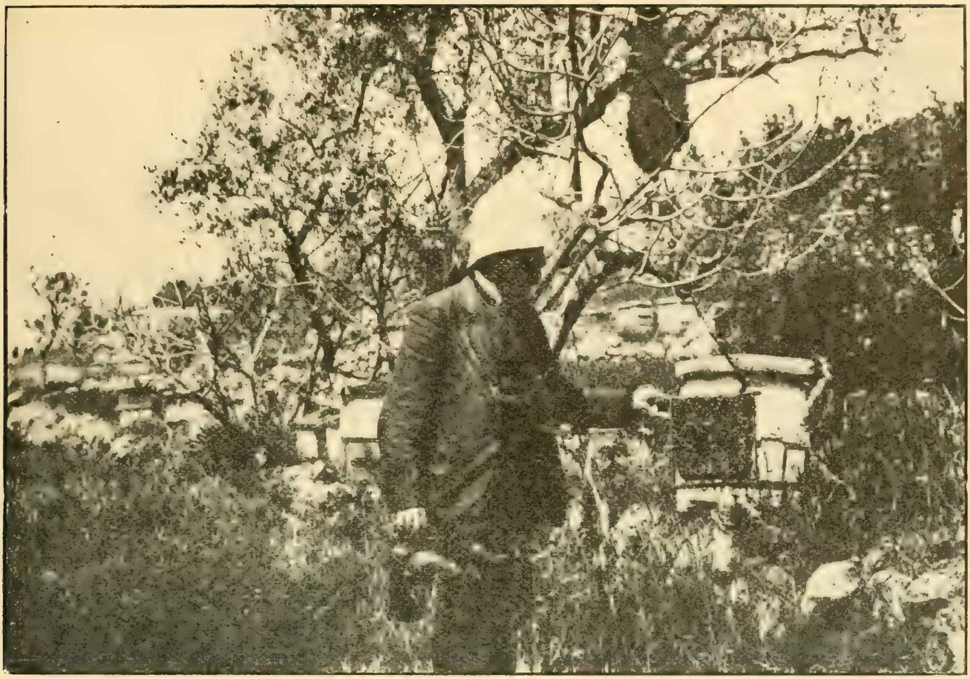


Fig. 6.—The Baldensperger apiary among the olive-trees in the Alps.

hideous of bee diseases—foul brood. Many "fixists" (so we call the old-hive apiarists) are about us; and though by some writers the notion has been spread that the movable-frame hives are carriers of disease, this is true for only the negligent beekeeper. I know well that the contrary is true. For me, "movable" beekeepers are at least very careful, and we can examine not only our hives but every frame—every cell—and put a stop to the pest; at least, every careful beekeeper does it. At the first visit in spring, every frame is lifted out and every cell containing brood is examined. In its earlier stage it is very easy to fight, provided every affected larva is attended to—that is, a liquid or solid of some kind is strewn over the diseased colony, which enables the bees to get rid of it without danger of spreading the evil. By the careful beekeeper, the European or American foul brood can be handled without danger from the next colony, even though you go to work at it after examining the sick one.

Some apiaries are miles and miles distant from the central apiary, itself (in summer) miles away from our home in Nice. In these out-apiaries a bee-tent is set up, and extractors and honey-cans are carried there, Fig. 7. As the tins contain 60 to 120 lbs. of honey, it requires strong and surefooted mountaineers to carry them down the declivity on their broad shoulders till the car carrying them to the central station is reached.

When honey was first put on the market in earthenware jars and without cases, our ancestors were still proud of their products. Progress has brought clear glass jars—has taught us to manipulate with great care, and to seek the customer sometimes with all kinds of persuasive talks. Staple prices have gone up; life is dearer; yet with all this our honey fetches only a few cents more per bottle than it did—certainly not sufficient to pay extra expenses.

Nice, France.

[We wonder what the migratory beekeepers of to-day would say if they could transport their bees over the country at the rate of only 2½ miles an hour; yet that is the average speed of a camel with a load, not including the stops. Our fast freights sometimes reach a speed of from 40 to 50 miles an hour—twenty times as fast as the camel; but, nevertheless, we fancy that the writer of the following article, when obliged to wait so long for trains, would have been glad to accept camels or any other kind of animals to help him out.—Ed.]

A DISASTROUS EXPERIENCE IN MOVING A CAR OF BEES

A Story of Bad Luck

BY H. F. STRANG

I have noticed accounts of shipments of carloads of bees where everything went off like clockwork; for example, Holtermann's shipment from Liberty, Mo., to Canada; also the Root Company's shipments from Florida to Ohio, and Ahler's shipments from his home at West Bend, Wis., to Louisiana. In view of these reports of success I thought perhaps a report of an unsuccessful shipment by rail, where everything went wrong from start to finish, might interest the reader.

I have kept from one to 100 colonies of bees for the past 30 years; but owing to poor health for a good many years I haven't engaged extensively in the work.

Fig. 7.—Extracting tent at one of the Baldensperger apiaries among the Alps in France.

I had been advised by numerous doctors to try the mountainous section of the South; and as I had spent some time in southwest Missouri and Arkansas when I was a young man, I naturally turned that way.

In August, 1911, I left my home in Michigan for a trip in the south; and finally, after looking over a lot of territory, I decided to locate in the southwest part of Missouri a little way from the Arkansas line on Flat Creek, in the Ozark Mountains.

I went home and got ready; but owing to bad weather I couldn't get ready to start before Nov. 15. When all was ready I had to wait nearly a week, owing to sickness. Finally I got the bees loaded, and left our station on the Pere Marquette Railroad about 42 miles from Grand Junction on Nov. 21 at 2:30 P. M. We had to be pulled to Greenville by the local, as where I loaded was just a branch.

We reached Greenville at 4:30 P. M., and were switched on the Y for the through freight to pick us up; but the best-laid plans of men go wrong sometimes. The through freight, when it got within about ten miles of Greenville, ran into some kind of an obstruction on the track, wrecked the engine, piled part of the train in the ditch, tore up some track, and they told us it would be 12 hours at least before we could get away from there. Instead of 12 hours, it was 38. Then they took us out to a junction on another branch, 20 miles east of Grand Rapids, and we were there ten hours before we could get away. So it was just 52 hours from the time I left my home station until we got to

Grand Rapids. How is that for 42 miles? In about an hour we left the Pere Marquette yards for Chicago.

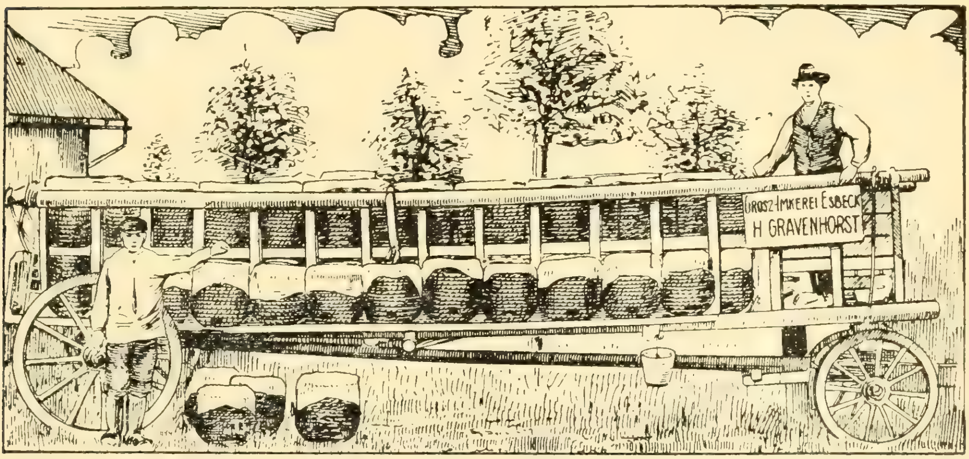
I will say right here, before I proceed further, for fear some one will say I ought to have gotten busy with the telephone, that I was a railroad man myself in my younger days, and I believe that I did every thing possible all along my trip to hurry matters. In fact, I met several of my old chums on my journey who did every thing they could to hurry the trip. Getting out of Grand Rapids in just one hour shows that I left no stone unturned to get out at the first opportunity.

When we arrived in Chicago my first mistake, and my only one, showed up. Nearly all (or all) railroad laws state that each car of bees must be accompanied by an attendant bearing a first-class ticket to place of destination; and the agent at my loading station told me I could put a cow or horse in my car if I so wished, and the railroad would have to give me a pass. I had a very choice Jersey heifer which I wanted to take with me, so I put her in; and the very first thing they asked me when I arrived at Chicago was, "Is your cow inspected?" as the laws of the State I was going into forbade the entrance of any live stock without inspection. I telephoned over to the government inspecting office, and got word that a man would be on hand to begin operations at 1 P. M. At 9:30 the next morning he arrived and started the test for tuberculosis. It takes 24 hours to carry it through, so I was in Chicago just 48 hours. If I had known, I could have had her inspected before I left home, as there was a neighbor of mine who was a deputy State inspector for Michigan.

At 11 A. M. they took my car over to the Wabash yards, and I hardly waited for it to stop and find where it would be switched before I was on the way to the transfer office to have my papers transferred. I had billed my car by the Wabash from Chicago to East St. Louis, and from there to destination by Missouri Pacific Railroad. When I arrived at the Wabash office in Chicago, I was informed they had just received news of a washout and bad wreck on their freight line near East St. Louis, and it would be 24 hours, and may be longer, before they could get a train through.

They consulted maps as to my destination, and told me they could take me to Kansas City and transfer me there to the Missouri Pacific, as they said, and showed me that the Missouri Pacific would take me to within about 30 miles of Kansas City before they took me south to my destination. So they changed my papers to read by Kansas City. I hurried over to the yardmaster's office, and received the pleasant intelligence that a train couldn't leave till an engine arrived, as they had had several wrecks lately, and were badly hampered for motor power. He thought they could put a train out by 4 P. M.; but in place of 4 P. M. it was 1:30 A. M. when we finally left the windy city.

About two hours before we left Chicago it began to snow and blow; and the further south we went the harder it snowed and blew; and in place of being the customary three-days' storm it was three times three, and then some. Well, we kept going until we finally got out of Illinois across the Mississippi River into north Missouri; but there wasn't a division point that we got out of in less than 12 hours, and in one place I remember it was 16 hours before we



Migratory beekeeping with straw hives as practiced by H. Gravenhorst.—*From Der Practische Imker.*

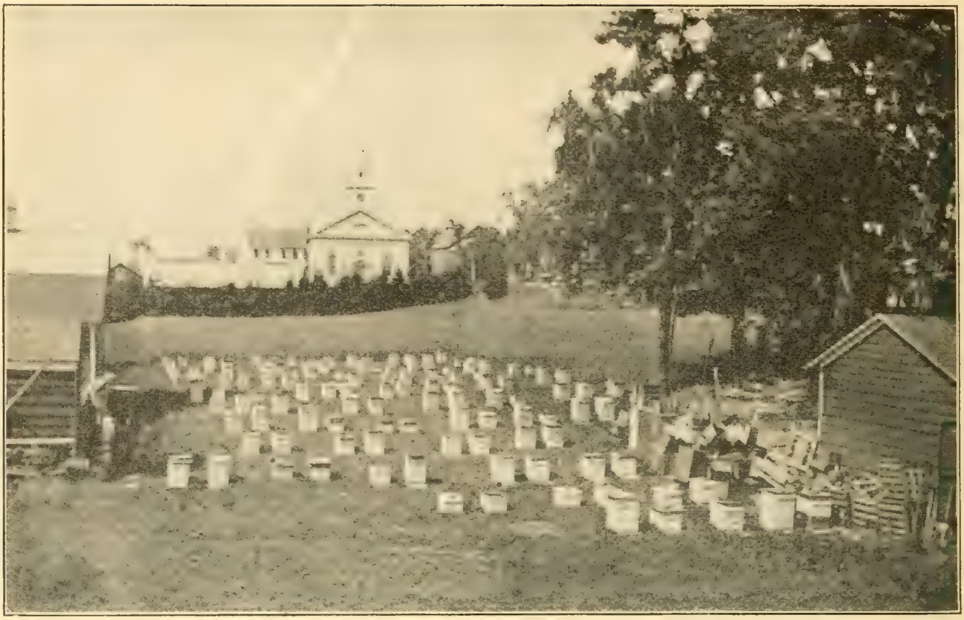


Fig. 1.—D. L. Woodward's home apiary where the colonies are set before being moved to the outyards.

finally got away. When we reached Moberly, Mo., the last division east of Kansas City, it was 9 in the forenoon. They told me they were going to try to start a train for Kansas City at 11:30 A. M.; but 11:30 came, and still no available engine. The Government inspectors had condemned every engine in the roundhouse but one, which had to try to get the mail-train through.

That night some engines got in off the road, so at 3:30 A. M. they started us out with a train crew that had been 12 hours on duty when we left the yards. They got us out about 20 miles west of Moberly to a little siding, and stated that there would be another crew on a special engine to relieve them inside of half an hour. It was six hours before they arrived. They had been on duty eight hours, as they carried an extra engine crew. They put both engines on the train, which at that time comprised two emigrant cars, four cars of live stock, a few cars of through freight, and my car of bees, etc. They finally plowed their way through to Dresser Junction, 30 miles east of Kansas City; then we went on a siding there with all crews tied up on time limit. Extra crews were to come from Kansas City in half an hour; but when the extra engine and snow-plow got within ten miles of us, the engine broke and returned to Kansas City for repairs; but the snow-plow came on through; and as there was a local freight tied up there in the drifts, and as the stockyard men were keeping the wires good and hot about the cars of live stock, they put the local engine on our train, cut out every thing except cars of live stock and emigrant cars and my car, and started for Kansas City in the drifts. We went to within about ten miles and met another extra coming after us.

We reached Kansas City at 9:00 P. M., with the temperature 9 below zero, and lacking just 4½ hours of 9 days between Kansas City and Chicago.

I immediately hunted up the yardmaster, and he told me he would have my car taken to the Missouri Pacific yard by 11, sure. It was about 8:30 A. M. next morning before they got my car in the Missouri Pacific yards, and at 1:30 P. M. they started south with my cars in a train of through freight, and I arrived at my destination at 6:45 A. M., 227 miles south of Kansas City. The ground there was not frozen. There was not even any frost in the air.

By 8 o'clock the teams began to arrive to take me to my destination, 16 miles over rough mountainous roads. In place of there being five wagons with springs for the bees, only one of them had springs, so I hunted up some baled straw, put a good bed of straw under the hives, got loaded up, and arrived at our destination just a little before 12 midnight, with 9 loads of bees. A second trip was made for the other four loads on Monday. It was Saturday when I

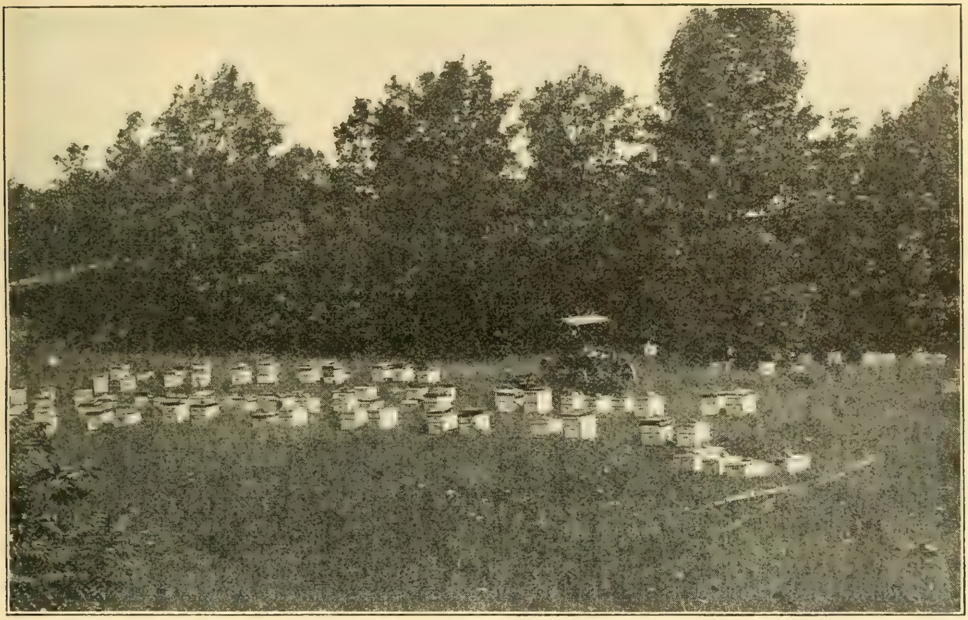


Fig. 2.—Outyard No. 2, near enough to the buckwheat so that it does not have to be moved for that flow.

arrived. They made thirteen loads of the stuff we loaded at the other end on to four loads. I had notified the parties who were to see to getting the teams by telephone from Kansas City when I left there. When I finally got them unloaded I found over a third of them dead, and the rest might as well have been; for all through that storm, of course, every bee that broke the cluster was a dead one.

But, thanks to Mr. Ahler's schooling, in all the shunting (and, of course, rough usage they passed through) never a hive left its place an inch, nor was a cover loosened, nor did a thing of the kind go wrong. That storm, as nearly as I could tell by reading and talking with others, passed but little if any south of the Missouri River. The bees that were left had a good flight the third day after I got them to their destination. It stormed until the snow was 18 inches on a level, and we had eight nights when the temperature went from 8 to 17 below every night. The old-timers claimed that we had the coldest winter and the most snow that had been experienced for years.

Instead of natural pollen in February it was the last of March before we had any; and then, to cap the climax, we had the driest summer here they had had for 25 years. The bees got hardly a bit of white honey, and the source of the fall flow all dried, so I have had to feed.

Clio, Mo.

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MIGRATORY BEEKEEPING IN NEW YORK STATE

An Auto Truck for Moving to Buckwheat Locations

BY D. L. WOODWARD

As I practice migratory beekeeping, no doubt some of the readers of GLEANINGS will be interested to learn the way in which I manipulate my apiaries.

As I bring all of my bees home to winter in my house cellar, I will start in the spring with the bees all at the home yard, Fig. 1. About half of my bees are shown in this photo, the rest being set out near the cellar, to remain there until time to remove them to the outyards. The photo was taken the day after the first supers were put on. If I could have waited until later I could have shown more supers, or I might have carried out several hundred empty supers and placed them on the hives while the pictures were being taken; but I am not so fond of work as that.

In this locality we take our bees from the cellar from the 1st to the 10th of April.

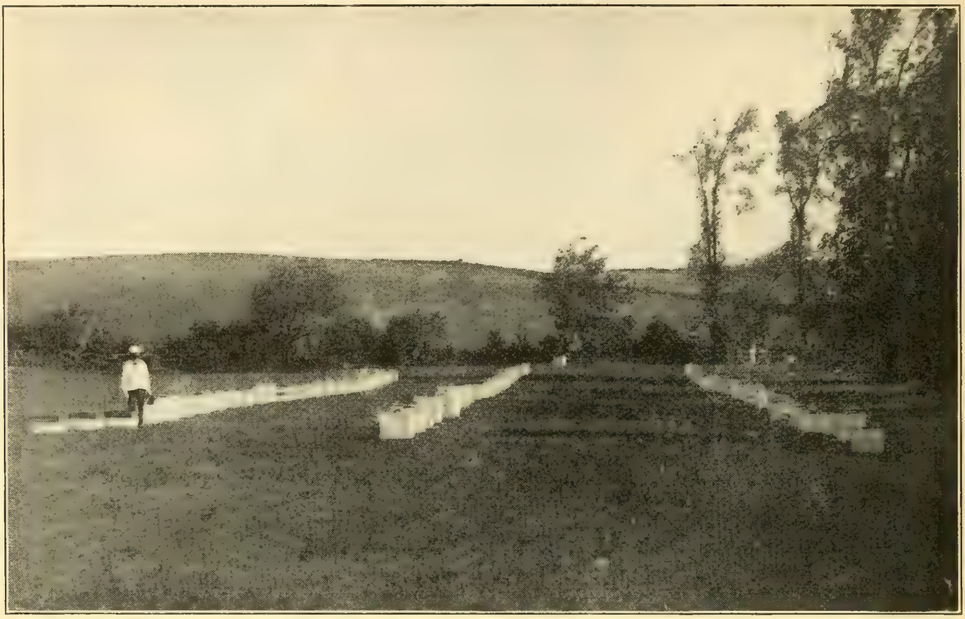


Fig. 3.—D. L. Woodward's bees moved to their temporary location to catch the buckwheat honey-flow. Hundreds of acres of buckwheat surround the yard in every direction.

Those that I expect to leave at the home yard I set on permanent stands; the rest, which are to be moved, are set near the cellar, to save steps.

As soon as the weather conditions are favorable we go through all the colonies, clipping the young queens and making out new record-cards. These cards or tags are made of boards sent out with new hives for division-boards; and as we do not use many of these division-boards we make use of the lumber by cutting the boards in pieces four inches long for use as record-tags. These tags are tacked on the rear right-hand corner of the hive, and the record is kept with a blue leadpencil. The whole season's record can be kept on this tag by writing compactly and abbreviating where possible. Some beekeepers I have noticed keep a record on a similar tag, or piece of cardboard, but place it under the cover of the hive; but this necessitates removing the cover whenever one wishes to look at the record; and, besides, there is a great chance of the tag being mislaid or lost. Some others prefer to keep their records in a book; but that is cumbersome and slow. With my method the record is always at hand, and after a while one learns to know the condition of each colony in the yard almost by heart.

The first record to be put on the new tag is the age of the queen. This is taken from the old tag before destroying it (of course the tags will become weather-beaten during a season, and the writing will be rather indistinct, and on this account we prefer to make out new tags each spring. The first record would read " Q 1912 C," C meaning clipped. If a later reading on the old tag states that the bees have swarmed, then we know that there must be a young queen there to be clipped. If there is no record of a swarm we skip it, leaving it to be looked after when all the young queens are clipped. After the young queens are clipped we proceed to go through those that have been skipped, in order to ascertain if the old queen has been superseded or not. At this time we also note on the tag the condition of the colony, whether *" strong," " medium,"* or *"weak."* Later in the season other things are recorded as they come along, such as " Swarmed J. 7," " Queenless Jy 1," or " Short of Stores Oct. 1."

All this work we like to do while the bees are at the home yard; but it is not always possible to do so, as we want to get the bees moved to the outyards, and get the supers on before the swarming fever is started, as we find from experience that it goes a long way toward preventing swarming. About May 15th we move the bees to the outyards, after first moving the supers there ready to be put on when the hives are opened up.

After the white-honey flow is over, which is about July 20, we move the honey home to extract. By this time buckwheat is coming into bloom, and we start at once to move the bees to the buckwheat locality, which is about six miles from our home yard, leaving our white honey to be extracted after the bees are moved. In order to do this, one must have plenty of supers with drawn combs. Fig. 3 shows the bees in their temporary yard, with hundreds of acres of buckwheat in every direction. In the back row there are three hives with the moving screens still on them. These screens are made in the shape of a telescope cover, with an inch-square cleat on all four sides of the inside of the rim, and rest on the upper edge of the hive, the top being covered with wire screen. The entrances are closed tight with a strip of board dropped into metal slots which are nailed to each side of the bottom-board. With our equipment it is not much of a trick to move bees, as our hives are all ten-frame Langstroth, well painted and sound, so that we are never troubled with leaks. Our truck platform was built to carry 33 hives which fit snugly, so that there is no jostling on the road.

Yard No. 2 is located at the edge of the buckwheat belt, so that they do not have to be moved for the buckwheat-honey flow.

During the fore part of October the colonies are all moved back home, and the season's work is finished as far as the bees are concerned.

In 1912 I purchased a 45-horse-power Fiat chain-driven auto and converted it into a truck to haul my bees and honey. (See page 213, April 1, 1913.) For that purpose it proved quite satisfactory, but rather expensive. It carried the bees without any jarring to speak of, and did it quickly. For light work it proved too expensive, so in 1913 I purchased a small car for running about to outyards, etc., and for retailing honey. I had a covered box built to fit on behind the seats which will hold 500 lbs. of honey put up in pails and bottles. This is about all that I can sell on the public market at Albany during market hours. Here I make such a display as is shown in Fig. 4. The beauty of selling on a market of this kind is that there is no delivering to speak of, as each customer carries his honey home.

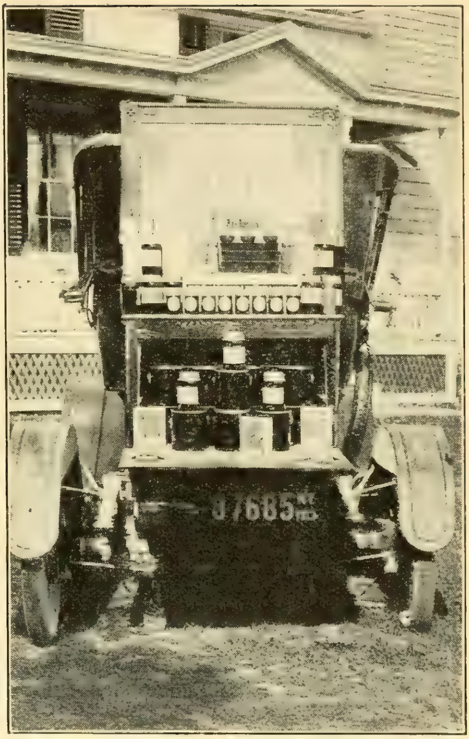


Fig. 4.—The light car used for selling honey at the public market in Albany.

I use a five-pound friction-top pail lithographed with a red background, with gold and black lettering. I find that such a pail is a great advertisement. Ofttimes people will send to the market by a neighbor or their children for a pail of honey, with the instructions to be sure to get it from the man with the red pails. I also use glass bottles holding six ounces, which retail for ten cents, and pint jars for which I get 25 cents. The pails retail for 65 cents.

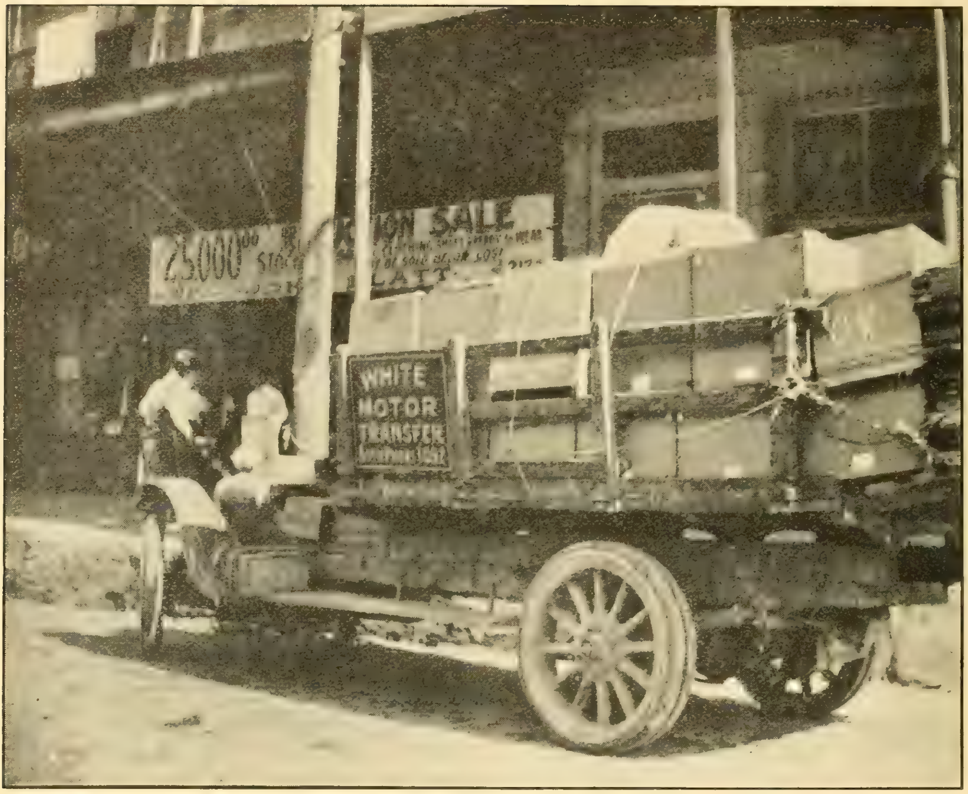
I have educated my trade to take my honey in pails granulated, but I always have it liquefied in the glass, as it shows off to so much better advantage. I would advise all producers of honey to encourage the use of honey in the granulated state, by all means.

Clarksville, N. Y.

GETTING STUCK WITH A LOAD OF BEES IN LOUISIANA

BY G. FRANK PEASE

Some time ago I had occasion to take an automobile load of bees 21 miles to another location in Louisiana. There were 56 colonies in the load, and they were moved before the clay roads became dry after hard rains. The truck went down at one place, and we had three hours of hard work to get the wheels planked up so we could get out;



Moving 56 colonies by auto truck in Louisiana.

but we made the trip successfully, and the bees soon settled down to work.

Although it was in the latter part of September we hauled the honey also in this truck. There were two loads of over 5000 lbs. each. This honey was so thick that it would hardly run through a large molasses-faucet, even with a hole in the top for air. I had an old valve from an automobile tire that just fitted in the air-hole, so I took the air-pump and pumped in a pressure of air, and in this way the honey was forced out as fast as it could be handled. The honey is so thick that a chicken nearly full-grown which jumped into a pan partly full of dirty honey could not get out, although only her feet were covered.

A good way to paste labels, that beats a brush all hollow, is to take a plate of window glass and put a small spoonful of paste on it. Place a label on the paste and draw it along the glass and over the edge, which scrapes off all surplus paste, and makes the label adhere tightly. Several labels can be pasted with each little dip of paste, and as quickly as one can draw the labels over the glass, for the pressure holds the label tight to the glass as it is drawn.

Marshall, Mich.

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SHUTTING OUT THE OLD FIELD BEES BEFORE MOVING

BY THEO. LEE

The plan of shipping bees to the South for wintering and for increase has been tried by a few Utah beekeepers. A Northern Utah beeman wintered some of his bees in Southern Nevada in the winter of 1912, and shipped them back in mid-summer, 1913. In shipping them back home, however, this beeman did one thing which it seemed to me is especially worth recording. Empty supers with wire gauze were nailed on the top and bottom of each hive. The bottom supers were nailed on in mid-day while the old bees were in the field. This, of course, left only young bees and brood in the hives to be shipped.

He had taken 250 colonies of bees to Moapa, Nev., in the fall of 1912. He made 275 nuclei, raising his own queens. He placed the nuclei by the side of the old colonies and removed the frames with young bees and brood from the old colonies, and left the old queen and field-bees on the old stand. He had a shallow super-rim with wire gauze nailed on top, and a similar one under the bottom. He left a bee-space between the bottom super and hive till ready to ship, and then slipped the hive so as to close the entrance. He nailed the supers on and shipped to Southern Utah. They came through in a cattle-car, reaching Utah July 1, 1913. There was practically no loss of bees, and they made a fine record for the rest of the summer. They did better than bees shipped from Southern California at the same time and to the same locality.

It is the old bees that make trouble on the way, and most of them do not survive the journey.

Spanish Fork, Utah.

CAN BEES ON LOOSE HANGING FRAMES BE MOVED WITHOUT FASTENING THE FRAMES?

BY E. S. MILES

I once supposed that loose hanging frames would require secure fastening ere they could be safely hauled around by wagon, and that belief came very near making me a user of the Hoffman frame. I soon found, however, that, for this locality, the Hoffman frame is almost immovable except on hot days, so I went back to the loose hanging frames, thinking it better to have a frame I could use, even if I had to fasten them some way, if it became necessary to move. Well, when I came to move, as most people do some time in life, I had about 185 colonies on loose hanging frames. I had about 25 miles to haul them by wagon, and I expected it to be a great job.

I myself had to go March 1, leaving the bees to move later when time to set them from the cellar. This necessitated a drive of 25 miles to set the bees out; and as we thought best to let them have a fly once, we had to drive up one afternoon and set out enough for two loads. (The people who bought the place were afraid of bees, and did not want us to set them all out at once.) We found it took the next day to get them out, fasten the frames and have the two loads ready to load in the evening so we could start back early on the morning of the second day. It thus took us about 2½ days to make a trip and get two loads which consisted of about 70 to 80 colonies. In order to fasten the frames we bent or kinked some stiff wire which we inserted between the bottom-bars, tipping the hive up from the bottom to do it, an assistant smoking the bees up out of the way so that it held the bottom of the frames from swinging. This kinked wire rested on the bottom-board, with each end bent up to spring against the sides of the hive. This held the bottoms of the frames nicely, and the tops we stayed by a ¼-inch strip of board across each end, a small nail being shoved through it into the top-bar of each frame. This worked all right, but it was also back-breaking work, and took about half a day to fasten up 75 to 80 colonies. We might have considered it a success, except that circumstances rather forced us to cut some corners.

By the time the roads were good for hauling, it was getting rather late for setting bees out; and as we were not there we could not open the cellars at night to ventilate; and so when we went on our second trip we found the bees becoming very uneasy. The cellars were warming up; and as it was warm, and the soft maples in full bloom we decided to set the bees all out that trip.

The next day was warm, and there was a strong south wind so that it was not fit to set bees out. However, we felt it necessary under the circumstances to get them out of the cellars, so we set the rest out any way. The wind and consequent drifting of the bees made us longer in putting them out, so it was too late to fasten frames unless we waited over one day for the purpose. The weather looked threatening, so we determined to try two loads without fastening the frames. We did this with considerable foreboding, and only the fear of getting held away from home by bad weather, and having to haul over bad roads, and the desire of the people to have us get the bees away, caused us to take what we considered at that time grave risks from loose combs. Imagine our agreeable surprise, however, on unloading at home, to find *no* injury whatever to most of the combs. Those in the lighter and older hives had not moved at all to speak of; and the few heavier and newer frames that slid over to one side of the hive did no injury at all. The bees simply clustered at the empty side. One hive we overlooked till fruit-bloom, and found the combs over to one side; yet that colony was thriving, and had about as much brood as any other. We moved three loads this way on common hayracks, with a little hay under the hives, and lost no bees, broke no combs, and no queen was killed. People around here said, "Those people will ruin their bees hauling them so far. The combs will all break down."

That was seven years ago; and since then we have kept outyards, moving bees each spring and fall.

Now, if the manufacturer of hives could see the hives with combs in as the farmer with a few hives invariably has them, I don't know whether he would attach much importance to the *kind* of frames. It seems to me he *might* decide against frames of any kind. I have picked up quite a lot of hives from farmers through the country, in the last 20 years, and I have yet to find my *first* one with straight combs *built* in the frames. I have found only one or two that were enough in the frames to enable me on a hot day to pry around so as to get the combs out at all, and they had to go back just as they came out, being too crooked to be interchangeable. Last year I bought one with the dummy in the middle of the brood-chamber and four frames on *each side* of it!

I am giving my experiences with loose frames as above for what it may be worth to the beginner. If you think you must have self-spacing frames to haul by wagon, in any locality where propolis is reasonably plentiful, you are mistaken; and I consider the loose hanging frame much more desirable for real practical honey production, where time and labor must be used to best advantage, and it is hardly necessary to add that we never think of fastening a frame, and have never had a dollar's damage from moving. We usually lift the covers, especially of the heavy hives, after moving; and if the frames are slid around a little we straighten them up; but it does not injure brood, bees, nor queen to have them do so. We have moved bees twice in August, when propolis was thinnest, without fastening frames, and no injurious results followed. I would not consider a self-spacer necessary for any wagon-hauling reasonable distances or on reasonably good roads. Our hives are the regular dovetailed, with metal rabbets.

Dunlap, Iowa.

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SOME TRIALS AND TRIUMPHS IN MOVING BEES

BY RAY C. WILCOX

My first experience with bees was during the summer of 1906, when I attempted to care for five colonies owned by a neighbor who was more afraid of them than I. The neighbor had a smoker, a pair of gloves, and a veil, as well as a few empty frame hives for use at "swarming time." I was not just sure when "swarming time" was, but had heard that bees swarm, so I cleaned up the hives and waited. At last a fine swarm issued, and settled on a large limb of a valuable apple-tree. The owner declared that the limb must not be cut, and that the bees would have to go. Thereupon I improvised a swarm-catcher in the shape of a large pail, which I held under the cluster while the owner gave the limb a vigorous shake. Most of the bees fell into the pail and were immediately thrown on a cloth in front of the prepared hive which they entered.

If more swarms issued they escaped unseen; but the bees interested me; and, besides, gave a neat surplus of honey, considering the effort expended. I decided that I must have some bees of my own, and that decision was developed into a resolution when I found that one of my most intimate friends was interested in bee culture, and had obtained several copies of Gleanings. Some of the latter I borrowed, and forthwith became a real beginner.

In April, 1907, I bought four of the colonies I had tended the previous summer. As they were less than half a mile from my home I had no great difficulty in moving them, although at the time it seemed like a great undertaking. In reality it proved quite simple. I closed the entrances one evening with screen wire, and placed the hives in a spring wagon. A few minutes later they were safely placed on their new stands.

As much of my time when not in school was taken up on the farm of my father, my growth as a beekeeper and the increase of the bees were slow; but by the spring of 1910 I had accumulated about 20 colonies. My friend referred to above had a few more. As we were but a few miles from a good buckwheat location I proposed that we move our best colonies to the better range after the clover flow had passed at home. Accordingly, in early August I selected ten of my best colonies, and, with the help of my friend, screened up the entrances, which were ½ by 12 inches. This was done in the evening, as soon as the bees had gone inside. By nine o'clock we had loaded the hives which had no ventilation except an air-space above, composed of a super of empty sections. By midnight we had placed them on their new stands without mishap, and they seemed to suffer no harm from their confinement. The night was quite cool, however, and may have saved trouble.

My friend's bees were moved in practically the same way except that we started early in the morning and reached our destination before the sun gave much warmth.

The following year my father sold his farm and moved to another, 35 miles away. I was allowed to remain at the old home to finish my course in preparatory school; and, judging from my experience related above that my 30 colonies of bees could be safely moved in August, I left them until that time.

The friend agreed to help me make the trip as before, which we thought would be accomplished without difficulty, so one day about the first of August, when the weather was very warm, I drove to my old home and stayed with my chum until the next evening, when, after many unforeseen delays, we got the bees loaded, and a little before midnight started on our long drive. From first to last we seemed to have trouble. I know now that many of our annoyances could have been avoided by proper management; but even so I could hardly have made the trip without loss. Morning found us only little over half way home. We decided to drive into a field and unload when we found a convenient chance; but before the chance came, bees began to escape from some of my makeshift hives, and ere long the horses were stung. One was a spirited black, which came near making a deal of trouble. However, my friend, who was driving at the time, finally succeeded in slipping the drawbolt and getting the plunging team away from the wagon. The horses were soon stabled in a barn; but the load of bees sat all day by the roadside in the hot sun. We did not get the bees unloaded until the next day at noon. I presume all would have been lost had it not rained, thus cooling the air on our second night's drive. As it was, only sixteen of the weakest colonies survived. A complete account of this trip will be found in GLEANINGS for Nov. 1, 1912, page 688. That was written by my companion, and gives a good idea of our troubles on the way. It was surely an experience that I shall never forget; and whenever I think of it I feel thankful to have escaped with as little loss as I did.

The season following my disastrous "move" was spent with a professional beekeeper, and I should like to say to any one who considers making a vocation of apiculture that there is no better training to be had than a season with a successful apiarist who gives the business end of the work the most emphasis. The next spring, 1913, I decided to begin beekeeping for myself in earnest, so I purchased the only available bees, which were twenty miles away. These bees were in dilapidated box hives; but they were moved late in April without trouble. I started on the trip at about nine o'clock, and arrived at the beeyard in the afternoon. The horses were stabled, given a good feed, and allowed to rest until 9 P. M., when I was ready to start. The bees were confined by placing each hive in a large sack of burlap which was drawn tight at the entrance, so scarcely any bees escaped. The return trip was made before daybreak, and the hives placed on their stands before the sun was up.

While I anticipate more experiences in moving bees, I feel that one can never use too much caution in what is, at best, a hazardous task.

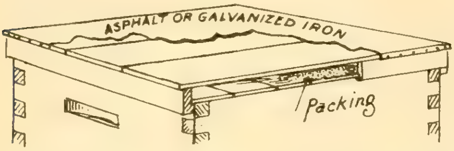
Spencer, N. Y.

A GOOD HIVE COVER

BY C. F. BENDER

I am not much of an inventor, finding it easier, usually, to adopt the inventions of others. But, after trying the different styles of hive-covers that could be bought, I found it necessary to invent several before I made one that suited me.

I want a cover, above all things, to be water-tight. It ought to lie flat on the hive. For this climate I think it is important to have a non-conducting cover, as far as possible—one that will hold the warmth of the cluster in the spring, and that will keep the super warm during a fall honey-flow. If one winters outdoors, a warm cover is worth the extra cost for one winter alone. I wintered outdoors for several years, with no packing except that contained in the covers. It is also important to have one that will last a good many years without too frequent painting. Lightness is a desirable feature, but difficult to get if all the other requirements are filled.



The cover I am about to describe fills the bill completely except as to lightness. Those for eight-frame hives weigh 8 lbs. as I make them. I make a rim of $\frac{7}{8}$-inch cypress boards $1\frac{1}{2}$ inches deep, the same width as the hive, and $1\frac{1}{4}$ inches longer. The end cleats of this rim are made two inches wide, rabbeted on one edge $\frac{3}{8}$ x $\frac{7}{8}$ inch. The sides of the rim are rabbeted $\frac{3}{8}$ x $\frac{3}{8}$ on one edge, so that, when the rim is nailed together, $\frac{3}{8}$-inch cypress boards will fit inside the rabbets for a ceiling, with no edges or ends of the boards exposed to the weather. The extra width of the end cleats is allowed to project on the under side to shed water. After the ceiling boards are in place the inch or so of space is filled with packing, and a top of $\frac{3}{8}$-inch boards is nailed on, with the grain running opposite to those underneath. I put the ceiling boards crosswise of the hive, because the short boards will not be inclined to warp. Those for the top are placed lengthwise. The whole affair is covered with the best grade of asphalt roofing, or, better, with galvanized iron. The exposed wood is painted. It is rather hard to describe, and somewhat hard to make, unless one has some kind of circular saw. I make them on a Barnes saw, and they cost me about 20 cents each for material. They could be made and sold at a profit for 50 cents each. I would gladly give a dollar each for them rather than use any other cover that I have ever seen.

Newman, Ill.

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A NEW YORK VETERAN BEEKEEPER

BY ARNOLD IRISH

I send a picture of a beekeeper who has been in the business for 50 years. He and his brother owned the first extractor in this town. This yard contained 150 colonies before European foul brood came, which all but wiped it out of existence. Italian bees saved the remnant. They certainly clean up the foul stuff all right—at least they did around here.

Lawton Sta., N. Y.

An apiary in which only the Italians survived European foul brood.

HONEY PRODUCTION OF IOWA

BY FRANK C. PELLETT, STATE INSPECTOR OF APIARIES.

For some time past the writer has been collecting records of honey production of the various localities of Iowa. While no such enormous yields are reported as we hear of in distant regions, on the whole the honey production of our State is fairly constant. White clover is the great nectar-producer; and the localities where the flow from white clover is supplemented by a fall flow from heartsease or other plants offer the beekeeper a pretty certain income. Correspondence comes to this office from every section of the State; and the yields average much alike in all sections where there is a fall flow. White clover is reported as the principal source of nectar by nearly every beekeeper reporting. One or two place sweet clover at the head of the list. In addition to white and sweet clover, basswood, heartsease, and fruit bloom furnish the nectar from which Iowa honey is stored. The average per colony, per year, counting good years and bad ones, good colonies and poor ones for a long series of years, is reported as from 45 to 50 pounds from a considerable number of localities. I may say that, judging from the reports, all sections of the State where there is a fall flow may be depended upon to produce an annual average of nearly fifty pounds per colony in the hands of intelligent apiarists. Localities where there is no fall flow report from twenty-five to thirty pounds as an average yield.

The record yield of a single colony, as far as reported, is 290 pounds of well-filled section honey, which was produced by F. W. Hall, in Sioux County. Mr. Hall is now at Colo, Iowa. We have several other yields above 200 pounds. At least two reports are at hand of the production of 300 pounds of extracted honey from a single colony. It is a little surprising that the record yield of comb honey should be almost as large as that of extracted honey, although of course the general average is much smaller. There are few entire failures in this State; and while the big crops reported from western localities are lacking, I am inclined to believe that for a long series of years the producer will fare as well in Iowa as elsewhere. There is, perhaps, as much unoccupied bee range in our State as anywhere, and the beekeeper need not look far for a location. S. W. Snyder of Center Point, reports that two apiarists in his township produced 20,000 pounds of honey last season, and did not occupy more than two-thirds of the range in the one township. From figures obtained, it is estimated that not to exceed one-tenth of the honey production possible to the State is now realized.

J. L. Strong, the well-known queen-breeder of Clarinda, has kept bees in his locality for more than forty years. Since 1885 he has kept very careful records of the production of his apiary. The average of the seasons in his locality may be judged by the following record of the colony on scales. It will be noticed that not once in the twenty-eight seasons has the colony on scales failed to produce some surplus. Mr. Strong's records for the seasons are as follows, all extracted, in pounds:

1885....	195 lbs. ext.	1899....	120 lbs. ext.
1886....	136 lbs. ext.	1900....	22 lbs. ext.
1887....	15 lbs. ext.	1901....	171 lbs. ext.
1888....	96 lbs. ext.	1902....	42 lbs. ext.
1889....	110 lbs. ext.	1903....	331 lbs. ext.
1890....	119 lbs. ext.	1904....	82 lbs. ext.
1891....	19 lbs. ext.	1905....	132 lbs. ext.
1892....	177 lbs. ext.	1906....	74 lbs. ext.
1893....	43 lbs. ext.	1907....	82 lbs. ext.
1894....	29 lbs. ext.	1908....	160 lbs. ext.
1895....	80 lbs. ext.	1909....	74 lbs. ext.
1896....	105 lbs. ext.	1910....	284 lbs. ext.
1897....	85 lbs. ext.	1911....	46 lbs. ext.
1898....	20 lbs. ext.	1912....	98 lbs. ext.

Mr. Strong has devoted his entire attention to beekeeping since 1882. He reports that the heaviest yield in a single day was 18 pounds, gathered by the colony on the scales, July 8, 1903.

Beekeeping has been long overshadowed by other agricultural industries; but land values are now so high that men of small means will be compelled to turn to something requiring a small acreage of land. The beekeepers have recently organized an association, and the meeting at DesMoines was attended with unusual enthusiasm. A great program was outlined, including a chair of beekeeping at the State Agricultural College, extension lectures on beekeeping, an appropriation of ten thousand dollars for foul-brood inspection, better premiums, and better facilities for exhibiting at fairs, and similar things. The prospects are exceedingly good for getting them all.

Beekeeping in Iowa is now looking up decidedly, and bids fair soon to be on the boom. It is easy to make things go when a lot of red-blooded fellows get together and boost. There is room in Iowa for five hundred live beekeepers who will establish a chain of outyards without getting in the way of those already in the business. They will be welcomed by those already here. In many parts of the State local markets are good, and in other sections they can be worked up, as has been done already by beekeepers on the ground. Some producers write me that their local markets take their extracted honey at 15 cents per pound, and comb honey sells accordingly. Other markets are much lower, however.

Probably at least half of the State is free from disease, and we expect the present legislature to provide the means to keep it free and to clean up the sections now diseased. Wintering and disease are the two problems to be met here, and both can be managed by scientific methods. This is no get-rich-quick proposition, but we consider it a safe one.

Atlantic, Iowa,

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SOME NECTAR AND POLLEN BEARING PLANTS OF TENNESSEE

BY J. M. BUCHANAN

It is essential that the beekeeper have some knowledge of the flora of his locality in order to get the best results from his beekeeping operations. He should know when to expect a honey-flow, and be able to tell with some certainty how long a flow will last, and what quality of honey he is likely to get from a certain source. Then he will know when to make his increase, when to expect swarms, when to put on supers, etc.

The character of the honey-producing flora and the date of bloom depend on the soil, the season, and the altitude. A list of plants that will be found in one place may not apply at all to a location not very far distant.

In Tennessee there is great variation in soil and in altitude, the latter ranging from about 300 feet in the Mississippi Valley to over 8000 feet in the mountains of East Tennessee; hence it will be impossible to give the exact dates of bloom of the plants in this list. It would seem, from a casual reading of the list, that we had a continual flow from early in the spring until frost, but such is not the case for any given locality. This will be better understood from the following general summary of conditions:

The Tennessee River crosses the State twice, and the Cumberland makes a long curve through the central section, and in these valleys white and alsike clovers, and, in many places, black locust, form the principal source of surplus honey. On the ridges and tablelands of the central and eastern sections, the honey is from poplar, sourwood, and wild flowers of many species. On the plains of the western part of the State, and in the Mississippi Valley, cotton gives the greatest surplus.

The following list is by no means complete, although it gives the most important honey and pollen bearing plants of the State, with their approximate date of blooming.

Soft maple, *Acer rubrum*, February, March. Pollen and nectar. First help to brood-rearing. Valleys.

Elm, *Ulmus americana*, March. Pollen.

Sugar maple, *Acer saccharinum*, March, April. Sweet sap; nectar, pollen.

Dandelion, *Taraxacum officinalis*, February to June. Nectar.

Peach, *Amigdalus persica*, March, April. Nectar, pollen.

Plum, *Prunus domesticus*, April. Some nectar and pollen.

Turnip, *Brassica rapa*, April. Sometimes gives surplus where grown for seed.

Redbud, *Cercis canadensis*, March, April. Nectar, pollen.

Apple, *Malus*. Nectar, pollen. Valuable for brood-rearing.

Black locust, *Rotinia pseudacacia*, April, May. Good yielder of fine honey; slow to granulate.

Yellow-wood, *Virgilia lutea*, May. Some surplus where abundant.

Poplar, *Liriodendron tulipifera*, May. Heavy yielder. Honey amber, but good flavor.

Alsike clover. *Trifolium hybridum*, May to July. Almost equal to white clover. Central and east.

White clover, *Trifolium repens*, May, June. Principal source in central and eastern valleys. Honey white.

Persimmon, *Diospiros virginiana*, May. Honey dark. Uplands.

Linden, *Tilia americana*, July. Honey white, good yielder. Central and eastern valleys.

Sourwood, *Oxydendron arboreum*, July. Uplands. Good honey, almost entirely free from granulation.

Cow-pea, *Vigna sinensis*, July, August. Some honey, mainly from extra floral glands.

Milkweed, *Asclepias*, several species, July, August. Some honey; sticky pollen.

Horsemint, *Monarda clinopodioides*, July. Some surplus in western and central valleys.

Indian corn, *Zea mays*, July, August. Pollen and some nectar.

Ragweed, *Ambrosia aptera*, July, August. Heavy bearer of pollen.

Smartweed, *Persicaria mite*, August. Light-amber honey of good flavor. Lowlands.

Sumach, *Rhus capolina*, August. Some surplus. Uplands.

Buckbush, *Symphoricarpos vulgaris*, August. Sometimes gives surplus. Honey, amber.

Cotton, *Gossypium herbaceum*, July to September. Good yielder in western counties.

Bitterweed, *Helenium tenuifolium*, August, September. Amber honey, very bitter. West.

Holly, *Ilex glabra*, July, August. Honey, dark. West.

Boneset, *Eupatorium perfolia*, August. Yields heavily along northern border of the State.

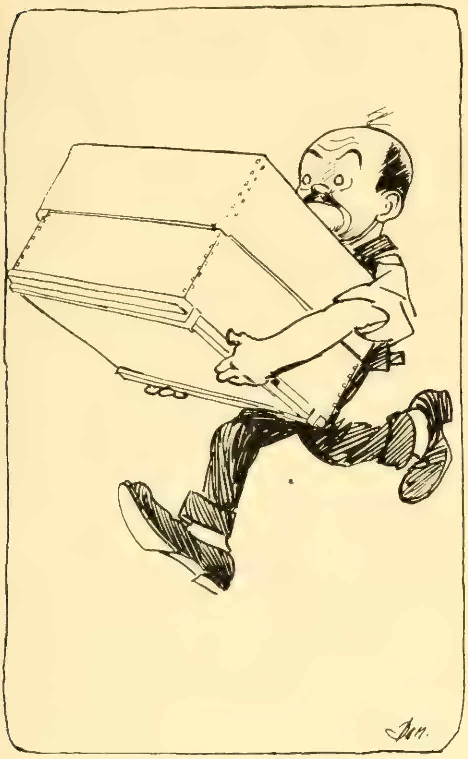
Laurel, *Kalmia latifolia*, July, August. Eastern mountains.

Goldenrod, *Solidago*, several species. September. Pollen.

Aster, *Aster*, several species. September, October. Honey, amber; strong in flavor, quick to granulate, Good for winter stores.

Franklin, Tenn,

Heads of Grain from Different Fields



THE BACKLOT BUZZER.

It's no place for Virgil's poetry, Pliny's philosophy, and Aristotle's meditations on the honeybee, when three swarms come off at the same time.

[The above is the first of a series of drawings depicting the life and observations of "The Backlot Buzzer," by J. H. Donahey, cartoonist of the Cleveland *Plain Dealer*. Each issue for some time to come will contain one of these drawings.—ED.]

Another Case where Ignorant Spraying of Fruit Trees Kills Bees

I have had heavy losses in my bees on account of spraying for the past three years. This loss by ignorant spraying is very illusory, in that many small apiarists may ascribe their loss to wax-worms for the simple reason that, when the colonies are reduced by the poison, the wax-worms finish them up very quickly.

My bees got the poison three years ago, in June, just after I had put on the supers, about the 10th; and about the last of the month there did not seem to be half the bees that there were when I put the supers on. In the mean time I had noticed dead bees at only two hives. I thought that these had the paralysis, as had two in previous years that had it. As the weather was warm, and as they all had eight or nine frames of brood which all hatched out, I got 400 lbs. of extracted and about the same amount of comb honey—all collected during the 21 days of August, and all from *Clethra amfilia* (L.), sweet-piper bush, or white alder. I had seven swarms during this time, and they were the only ones during the year,

The next year (1912) after selling eleven to go into cucumber hothouses I had 35 good strong ones, and two or three weak ones. They were thriving well until apple-trees got into blossom, at which time they began to die off. It was so cold that large quantities of brood died in the cells. About June 1 I united them all into 14 hives. I went away, and was gone two weeks. When I returned, several had gone under entirely until I had only eleven. I then bought two hives of bees to give them bees to build them up for winter. I also bought several queens and two 1-lb. packages of bees. I also had one swarm come to me on Aug. 25. All of these gave me 12 colonies to winter. Every one wintered well, and all were in fine condition when the apple-trees came into blossom. In the course of two weeks they again went down to three. This is pretty discouraging.

Woburn, Mass., April 11. JOHN F. COBURN.

[This is one more link in the chain of evidence showing how bees are killed off by the ignorant spraying of fruit-trees while in bloom. The reports of these cases are so numerous that it would hardly seem there could be any question about it now.—ED.]

The Effect of Climate and Soil on the Color of Honey and Sorghum Syrup

I have been interested in this discussion of the effect that climate and soil have on the color of the honey of the same plant. I believe that the same plant in two different kinds of soil will produce honey of different shades.

I was born on the Black Land country of Texas, and I've seen a great many men there try to produce sorghum molasses. The sorghum cane grows there very luxuriantly, but the finished product, syrup, is black and watery—a very poor substitute for something sweet.

Over on the clay hills and sandy bottoms of the Cross Timbers, only a few miles away, sorghum cane doesn't make such heavy growth, but the sap from it makes a delightfully clear, fine-flavored molasses in which, in the winter time, there will be found fine granules of sugar. This sandy-land syrup is the next best thing to honey.

Rocky, Okla., April 22. KOS HURST.

[That climate and soil do have some effect on the color of honey there can be no doubt. The clover honey of Canada is undoubtedly lighter in color than clover honey south of the Great Lakes. Still further south, this same honey becomes a little darker. The northern-grown alfalfa honey in the Western States is lighter in color than the southern-grown. We have seen this statement contradicted; but the honey-buyers of the country know there is a difference.

For some reason the colors of palmetto honey in different parts of the South vary somewhat. In some places it is light in color, and in others it is a little on the amber order.—ED.]

The Science of the Granulation of Honey

What chemical change takes place when honey candies? Is it as wholesome as natural honey? What is the chemical action of vinegar in preventing honey from candying? Is this addition illegal?

Spokane, Wash., April 24. J. C. MICHEL.

[This subject of the mechanical changes that take place when honey granulates has never been thoroughly investigated so far as we know. Chemically there is no difference between granulated and liquid honey; that is to say, both will analyze the same. Ordinary honey is an invert sugar, while the raw nectar in the flowers is a cane sugar. It will be seen, then, that the bees make a marked chemical change in the process of ripening and of evaporation. "Honey candies on standing," says Dr. Headden, Chemist at the Colorado Experiment Station, Fort Collins, Col., "because of the ability of its dextrose to assume a crystalline form much more readily than the levulose."

Ordinary honey contains a combination of dextrose, levulose, and water in approximately equal proportions. Some honeys will granulate much more readily than others because they contain more dextrose in proportion to levulose.

We can not say what the chemical action of vinegar would be in preventing granulation, if it prevents it at all. In any event its use for the purpose would be a violation of the national and State pure-food laws.—ED.]

Dry Pulverized Powdered Sugar Mixed with Common Flour as a Substitute for Natural Pollen

Referring to page 283, April 15, article about artificial pollen, why not try some dry pulverized or powdered sugar, mixed with the flour, say one part to ten parts of flour, and have water near at hand for the bees to drink, so that they assimiliate the mixture to the proper consistency of natural pollen? This may seem a foolish idea; but one can never tell until the plan has been given a trial, remembering the old saw, "If at first you don't succeed, try, try again."

Lacrosse, Wis., April 27. THOMAS D. BUDD.

[The idea is worth trying; but at this time of the year there will be no dearth of natural pollen, either north or south. But we can remember the suggestion for next year.—ED.]

Queen Laying Several Eggs in One Cell

I have a stand of bees that, to me, acts peculiarly. Last summer a pound of bees were put in a hive containing full sheets of foundation, and as fast as it was drawn the queen placed as many as three eggs in a cell.

This spring we find in many cells five or six eggs in each. In others there is just one. They are in fine condition, but I can't understand why so many eggs are laid in some cells.

Greenville, S. C., April 13. J. T. BURGARD.

[In your case this condition may be due to the fact that the queen is very prolific, and capable of laying in a larger area of comb than the bees can cover; and rather than go outside of the cluster she places the surplus eggs in cells where she has already laid. The bees usually remove all such eggs except one, which is properly cared for. After your colony becomes strong you will no doubt find that this condition will disappear.—ED.]

Building Combs from Starters in Wired Frames

Is it practicable to use starters in frames that are wired? In building down from starters will the bees attach combs to the wire, or should I use full sheets?

Concord, N. C., April 13. W. D. YORK.

[It is a difficult matter to get bees to build combs in a satisfactory manner in wired frames from foundation starters only. If the hive is set level so that the comb will hang straight in the frame the bees will build over the wires; but when they come to them they are very likely to make a row of faulty cells. Owing to the large amount of drone comb usually built on starters, it is more economical to use full sheets.—ED.]

Maricopa County, Arizona, Overstocked

From the report of our efficient foul-brood inspector, Hon. J. P. Ivy, I find that we have 19,858 colonies in Maricopa Co. For some time I have been replying to questions regarding locations, etc., but I wish to say that the apiaries are overlapping each other already. Our rigid foul-brood law has kept many from locating here with diseased apiaries, and I think we shall be able to exterminate foul brood entirely in the near future.

Phoenix, Ariz. WM. LOSSING.

Proper Ventilation Removes Moisture within the Hive

I have noticed paint "blister" on some of my hives, but have usually attributed it to the use of poor paint or failure to shellac boards showing excess of pitch.

There may be some difference in the amount of heat reflected or absorbed from the sun's rays by painted and unpainted hives; but ventilation will dispose of internal moisture more effectually than to depend on the walls of the hive to absorb it.

Rocky Ford, Col., March 11. A. S. PARSON.

Enclosing Hives in Cloth Bags to Make Them Safe for Moving

Most beekeepers have a great time telling how to fasten the bees in the hive so that they will be safe under all circumstances. The best way I can find to fasten them is to get for each hive two yards of sheeting; put the ends together, and sew up the sides. This makes a bag. Draw this over the hive and tie the end like a sack of grain. None will come out, no difference how far you move them, and you do not need to close the entrance.

Emerson, Ill., March 17. W. H. H. STEWART.

Borax to Keep Cockroaches Away from Bees

I have found borax the best remedy for cockroaches and ants. It acts rather slowly, however, for it takes about a week to have much effect.

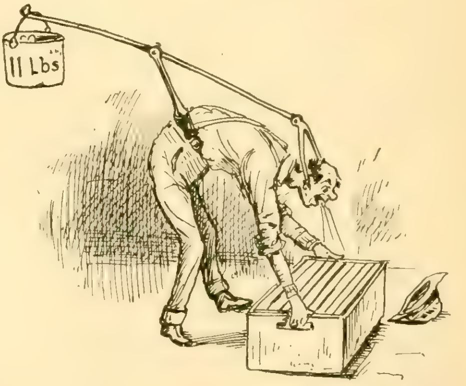
Covington, Pa. H. P. KNOWLTON.

[We ourselves have found borax a good remedy for cockroaches. If scattered around where they are found they seem to keep away after a few days; but it usually has to be scattered around quite frequently. So far as we know, it would do no harm to the bees.—ED.]

Heavy Fruit Bloom; Good Prospects

Bees in this locality are doing finely; very heavy fruit-bloom; also best prospects for a bouncer clover bloom and basswood; supers mostly have all been placed on over the brood-nests, and bees have commenced work in them. Bees in this vicinity came through the winter exceedingly well.

Glen Easton, W. V., May 8. JAMES I. LUTES.



Ferguson Whiteside's remedy for backache when moving bees.

A. I. Root

OUR HOMES

Editor

When a man's ways please the Lord, he maketh even his enemies to be at peace with him.—PROV. 16:7.

Dear friends, I have a wonderful story to tell you; and (may the Lord be praised) it is a *true* story. A few days ago a very prettily bound book of about 160 pages came through the mails. A printed slip in the fore part of the book reads as follows:

> As a brother-editor I am sending you this book, hoping that you will peruse it, and not only enjoy it but profit by it, and then give it a review in your paper. FRED ROHRER, Berne, Ind.

The book is *indeed* "stranger than fiction." I suppose most of you read in the papers (some years ago) or heard something about it at the time, that a temperance worker's home was dynamited by saloonkeepers because he tried to enforce the law. Well, this book was written by the man whose house was dynamited, and who was assaulted and pounded in the streets and in his office; but as he trusted in God he was not so easily scared out of town. As the preface is very short we give it here entire:

> The object of this book is threefold:
>
> 1. To praise God for victory after a long and bitter war of constant battling between the forces of heaven and hell.
> 2. To encourage young people to do right because it *is* right, no matter what people say; for right wins in the end.
> 3. To nerve temperance people individually to law enforcement, for this, coupled with faith in God, is the key that solves the temperance problem.

As I take it, Bro. Rohrer is a Mennonite; and, if I am correct, the Mennonites are what is sometimes called a non-resistant class of people. They do not believe in striking back, and their motto seems to be to return good for evil. On page 9 we read as follows:

> The towns are named after Bern and Geneva, Switzerland, because the early settlers of this community hailed from the land of Wilhelm Tell; and about 80 per cent of the population of Berne and vicinity speak the Swiss dialect to this day.

The above does not say he is a descendant of William Tell, but the book seems to indicate he has inherited the Tell spirit. We clip the following from page 45:

> About an hour after the events just told, when I had returned to my office where I happened to be alone, Abe Bagley, who was then president of our town board, came in, first on business, then asked why I had made him go before the grand jury. He had also been seen going into saloons when they should have been closed, and that's why his name was handed in with the rest.
>
> At that time our town officers would pat the saloonkeepers on the back and tell them just to go ahead and pay no attention to us; that ours was just a mushroom enthusiasm which would soon die out; that we had a kind of crazy spell, and would get over it after a while.
>
> I hadn't said many words when the town president came into my private apartment, behind the desk, grabbed me around the waist, jerked me off my stool, and knocked me on the floor. Just then the door was opened, and in came some twenty men who had been watching for just this moment.

The above gives us a glimpse of the condition of affairs in Berne, Ind., when this young printer started out against great odds to insist on law enforcement. He tells us of several places where they had a mayor so much in sympathy with the liquor gang that he had a fashion of fining criminals "one dollar and costs" when they came before him for law-breaking. Let me now give you an extract from pages 46 and 49:

> Our town president proceeded to drag me out; but before he got me out of my private office I had a chance to get on my feet again and caught hold with both hands of the iron guards around my desk, and I silently prayed to God to keep me from letting go. The man of towering physique who had hold of me again grabbed me around my waist, lifted me off my feet and tried to jerk me loose until my hands were blistered and skinned. Then he took hold of my wrists and tried to work my hands loose from the iron railing, so that both arms were swollen the next morning.
>
> The mob was in a fury, and became impatient. Some cried:
>
> "Bring him out, bring him out; why don't you?"
>
> He replied:
>
> "I can't take him out."
>
> Then others shouted:
>
> "Punch him, punch him!"
>
> Still others yelled:
>
> "Pound him, pound him!"
>
> As he brought his big fist down upon the back of my head and on the neck in rapid succession I silently prayed to God to help me bear it. And he did. Bless your heart, God never goes back on a man who doesn't go back on him. Although I saw the stars fly in every direction at each stroke, they never hurt me a bit. I never groaned, and never uttered a sound during all the time the mob was in the office. The town president hammered away on my head until the town marshal, William Tucker, came and with difficulty forced his way through the crowd and ordered the men all out.
>
> I was reading proofs when the men came in; and as they left I picked up the papers that were scattered over the floor and went straight to my work again. The town marshal was standing in front of my desk and watched me while I was marking mistakes on the proof-sheet. Presently he remarked:
>
> "This is going to be a bad night for you. I wouldn't be in your shoes for a thousand dollars."
>
> "Why?" I asked.
>
> "Oh! they are red hot after you; and they will get you to-night if they can. You'd better go home."
>
> "Well, if they want me they can get me at home just as well as here."

This incident has a bearing on something that comes in at the end of the book. How many Christians have we among us who could stand treatment like that without striking back? Friend Rohrer, it seems, was given grace in answer to prayer to talk kindly and good-naturedly to those who threatened him, and finally knocked him down and pounded him. Of course, those who attacked him were generally filled up with drink; but the persecution became so great against this almost single-handed temperance worker that his best friends *advised* him to leave town. Here is an extract from page 55 which shows that we have not only a *hero* in our story but a *heroine* as well.

> On the evening before, after the two attacks upon me, friends went to my house to console my wife and be with her. Now, they and relatives urged her to persuade me to stop fighting saloons. But she answered:
>
> "Why, that would be too cowardly to give up a fight because it is growing warm."
>
> "Yes; but they will kill him as sure as you live, and you can't stand it."
>
> Very calmly and deliberately she replied:
>
> "Kill him? Let them kill him if they wish; I've given him up. I'd rather be the widow of a dead hero than the wife of a living coward!"
>
> And that settled it with me. After that I never had enough nerve to act cowardly. With such a woman at my side, what could I do but keep my place on the battlefield, and stay there like an ox between a yoke on one side and an altar on the other—ready for service or sacrifice?

What do you think of a devoted wife who can say to a mob of drunken men, "I had rather be the widow of a dead hero than the wife of a living coward"?

As an illustration of the way in which this godly man stood up before his enemies, see the following from page 75:

> "Fred, I came to lick you!"
>
> "All right, just lick me if you think it would do you any good."
>
> He then tried to provoke me into anger and get me into a fighting mood; but I jollied him all the while and tried to keep him in good humor as long as I could. Finally he thundered at me:
>
> "Are you ready?"
>
> "Yes, I am ready any time; are you?" I answered, but remained seated on my stool and let on as if I weren't paying any attention to him, and that, of course, wasn't getting him ready very fast. You see it's hard for a man to work up his fighting spirit to the striking point when you try to make him laugh all the time. Fighting and laughing don't mix very well. It was like pulling teeth for that man to get started in his fight; but he finally mustered up enough courage to raise his big arm and land a heavy blow on my face so that I flew off my stool into a corner like a little squirrel, as he himself termed it.

I wish to call particular attention to that sentence, "You see it is hard for a man to work up his spirit to the striking-point when you try to make him laugh all the time."

This whole story reminds me most vividly of some of my experience in years past when I attempted to render good for evil, and to love my enemies, and to "do good" to those who hated me.

After the saloonkeepers with dynamite had to give up, and the town of Berne was made dry, and good men were put into office, the neighboring city of Portland, Ind., was approaching a wet-and-dry election. They sent for Mr. Rohrer to come and talk to them, and he told his story substantially as given in the book, and caused righteousness to triumph. At the close of his talk he clenched the nails as follows. Here is what he had to say to the great audience that packed the court-room:

> "I see this sounds to some of you like a fish story. But do you suppose that I would make up a story like this when I know that one of the three men of whom I am talking is sitting in this audience and is listening to every word I say? If I wouldn't be telling the truth, wouldn't he get right up and call me down as a bare-faced liar?"
>
> Then everybody looked around, and the men just craned their necks to see where he might be. I asked Mr. Rinaker to arise and tell the audience whether or not he is one of those three men.
>
> Mr. Rinaker arose and addressed the meeting.
>
> "Gentlemen," he said, "I am one of those men, and I can testify that every word Mr. Rohrer spoke is true. He did put me out of the saloon business, and to-day I am glad of it," and went on to tell that he is now in the restaurant business and likes it much better, etc.
>
> That was making a "hit," and it had the desired effect. The next day the legal voters of Portland signed the remonstrance freely, and by Friday following every ward in the city was made dry and the saloons have never returned.

You see he not only whipped the saloonkeepers to a finish, but he demonstrated the possibility of transforming *enemies* into *friends;* and this ex-saloonkeeper actually went with him and sat near him while he spoke and told his story, and then rose up and testified before the great audience as above. Now one thing more:

> It might as well be stated, too, that Abraham Bagley, the first man who assaulted me in my office, and who was going to deliver me into the hands of a howling mob, was the architect of the new *Berne Witness* building, just completed and described in the next chapter. I paid him $500 for drawing the plans and assisting me in superintending the work, for I bought the material for the building and hired the laborers, and kept their time mostly myself, and never had a quarrel with any one.

That illustrates most powerfully the grand truth in the text I have chosen. Friend Rohrer prospered in his printing business, and in his temperance periodical called the *Berne Witness*, until he bought the premises where the saloons had just been carrying on their hellish work. Not only that, he hired the man who (years before) first assaulted him in his office to make the plans for his great printing-office, and to assist in superintending the work. Truly, truth *is stranger* than fiction. On one of the closing pages of the book we are given a picture of this building. To illustrate how God prospered the fearless young printer, read the following which I clip from page 142:

> This, the first paper published in Berne, appeared as a seven-column folio, and was printed on an old Washington hand press. A good friend of mine predicted that in a year the name of the paper would be changed from "Berne Witness" to "Berne Quitness;" but instead of doing that it was enlarged to a

five-column quarto, and the force of two increased to three. In April, 1899, it was changed to a six-column quarto, and the force increased to four and soon to five persons. The next year a German edition was added, and continued until November 1, 1901, when the two were merged and issued as a semi-weekly for eleven years. On September 2, 1912, the semi-weekly gave place to a tri-weekly, in which form the paper is now delivered to its readers.

In closing, let me lay emphasis on the wonderful truth taught in the above. It is a grand thing to *enforce* law and to come out victorious over such a gang as infested Berne, Ind., at the time the story opens. And, by the way, I am afraid there are far too many towns—yes, cities—that are infested and ruled by just such a gang. We have judges who fine a man " one dollar and costs " when his offense should send him to the penitentiary. Well, this matter of law enforcement *is* a good thing; but, dear friends, how much greater and grander is the victory when law enforcement can be managed with so much love and kindness that even the *saloonkeeper*, perhaps the *dynamiter*, may be made personal friends and set to work in something that is praiseworthy before God and before all good men and women!

One thing more just now occurs to me, showing the Christian devotion of this young temperance worker. At one time there was a discussion as to whether a certain kind of liquor was intoxicating or a temperance drink. Mr. Rohrer called the town marshal and asked to be locked up with him, and one or two other witnesses. He also got the marshal to keep him locked up to see if the liquor made him drunk. He then drank three glasses of what they called " hop cream." He said it was a long time before the door was unlocked and he was permitted to go home without fear of being arrested for public intoxication. His evidence was accepted, and the man who sold the hop cream was fined $75.00 and costs. In a thousand other ways this man Rohrer collected material for his temperance crusade. He studied the laws of Indiana until he knew them by heart, and the expert whisky dealers found out that he was *more* than a match for them.

In closing let me say that the splendid introduction to the book is by that magnificent man and temperance worker, ex-Governor J. Frank Hanly. Lack of space forbids the whole introduction, but I want to give the last paragraph.

> Four times the sponsors of the traffic assaulted and beat this man's person. Once they sought to mob him, and once they dynamited the house where his wife and children slept. But his will was unbreakable, his courage unfaltering. He remained throughout it all as loyal to his convictions as the needle to the pole, and as faithful to his purpose as the circling stars in their courses, consoled and sustained by a flawless faith—a faith that whatever might personally befall him, the cause he served would remain and go marching on until God should crown it with victory. J. FRANK HANLY,
> (Governor of Indiana 1905-1909.)

If you wish to help encourage such a man, send 50 cents to the address shown in this Home paper; and may God be praised for this wonderful demonstration, standing out sharply defined before all the world as a vivid illustration of the wonderful truth of my text, " When a man's ways please the Lord, he maketh even his *enemies* to be at peace with him."

HIGH-PRESSURE GARDENING

POULTRY AND POTATOES IN FLORIDA.

Before you commence to read this I wish you would turn over to page 317, April 15, and look at the picture of a plate of potatoes. I have something more to say about it. When I took that plate of potatoes to town to have it photographed I first carried it into a grocery where I sell my eggs, and asked them how much they would give for such potatoes. They thought that $1.50 would be about right. I took the potatoes to another grocery, where I also sell eggs, and they said the same thing; but when I looked at the new potatoes they had for sale I said, " Look here, my good friend, if you can get 40 cents a peck for the potatoes you have there, you can easily get 50 cents a peck for mine."

He told me that perhaps it would be a good idea to bring him half a bushel. I did so, and they were snapped up almost before I was out of sight. The next day I brought him a bushel, and they were promptly taken in a like manner. Then I brought him two bushels; and every day when I went into the grocery with some eggs, my nice washed assorted Triumph potatoes were gone. Finally the proprietor of the place first mentioned asked me why *they* could not have some of the nice potatoes I was growing. I told him it was because he offered me only $1.50. "Well," said he, "nice potatoes are worth more money now. Bring me a bushel."

The next day they wanted three bushels, and so on until my whole crop of about twenty bushels was all gone. When I first started these nice potatoes the proprietor thought they could not get 50 cents a peck; but one of his young clerks interposed something as follows:

"Why, yes, we can, Mr. B., for we have quite a few customers who do not care any thing about the *price* providing they have something that is good, and looks nice."

It occurs to me just now that I had better tell you something about the potato market in Bradentown when I arrived there in November. We carried down a few potatoes I had just dug in my garden in Ohio. When those were gone I bought a peck (for table use, of course) in Florida. They were potatoes that had been shipped down from the North. I think they cost 60 cents a peck. Of course, this price includes delivery; and I have sometimes thought that people like myself who do not ask to have things *delivered* should have a little lower price. Well, of these potatoes that cost 60 cents a peck, nearly half of them had to be thrown away. They were bruised, cut with a hoe in digging, and had begun to rot. They were ill-looking and ill-smelling. I went to another grocery, and there found but little better potatoes. Mrs. Root said she had to throw away half of them. By the time my new potatoes were on the market, potatoes from the North were being shipped in, and these were rather better, and sold at a lower price—I think about 40 cents a peck.

Do you inquire why potatoes in Florida should be 60 cents a peck when they are digging them here in Ohio at 60 cents a *bushel?* Well, there are several reasons. Potatoes are bulky, risky to handle, and if sent to Florida during the hot weather, especially right after being dug, they are liable to rot. This does not explain, however, why we should find so many potatoes down in Florida that are cut or otherwise injured in digging. Mrs. Root declared that *somebody* sorted out *culls* and then charged consumers 60 cents a peck for them. Some of you may ask, "If new potatoes can be sold down in Bradentown for $2.00 a bushel, why does not everybody go into the business?" I asked my neighbor, Mr. Rood, why he did not grow potatoes by the acre. He said, "Simply because I can make more money in growing celery and strawberries."

I suppose you know that new potatoes are shipped from Florida to the Northern markets by the hundreds of carloads, and this is being done now while I write. I do not think, however, they get the big price of $2.00 a bushel.

Now, something else comes in right here that Mrs. Root has complained about. She says the people who write for the papers never mention it. She says that $2.00 a bushel is not so much when they are paid for in store pay, like our eggs and all sorts of vegetables and fruit (that is, where we do things on a small scale); the produce has to be carried to the towns and sold at the groceries, and all you get is "store pay." I believe the rule is for the grocer to sell potatoes, fruit, eggs, and vegetables at just what they pay for them. Their profit comes from the goods they sell in exchange for truck.

A year ago, when I left Florida I had a credit of about $40.00 at the groceries; but it took it all, and more too, to pay for the "chicken feed" from May till November. Mrs. Root comes back at me just here and asks where the *profit* is. The profit comes in the young flock of pullets that have to be fed until they are old enough to begin to lay. You see I am *now* coming over to the *poultry* part of my article.

We hear it over and over again that it does not pay to keep chickens in Florida because grain costs so much; and that is true to a certain extent, or according to how you look at it. Wheat, oats, and corn cost about $2.00 per 100 lbs.; corn and oats a little less, and wheat a little more. But now look here: Even if it *is* true that you can't grow wheat, oats, and corn profitably in Florida, you can grow Irish potatoes (as I have demonstrated every winter), and get a good price for them. I can swap a bushel of potatoes for 100 lbs. of corn, and usually get 15 or 20 cents besides to my credit. I do not know how many bushels of those nice potatoes could be grown on an acre; but I think it safe to say 200. Now, if every bushel were swapped for 100 pounds of corn, what sort of a corn crop would that be? And, by the way, all the grocers in Bradentown deliver their stock, and, if you wish, they at the same time pick up your products, such as eggs or garden truck. One of the grocers recently purchased a Ford auto truck, and he will come down to my place, a mile from his store, to bring me a bag of corn and take back a bushel of potatoes. Now, Florida has some drawbacks, I admit; but is there not much to be thankful for also?

Just a word or two more about swapping country produce. If I am correct, this practice is not confined to Florida, but it is a fashion almost all over our land. Take your butter, eggs, etc., to the store, swap them for groceries; and is not that a short cut from producer to consumer? I think that *butter* of late is mostly cash; and here in the North we have egg-dealers who go around to the farmers and pay cash. Mr.

Rood, in selling his strawberries at the groceries in Bradentown, has the same difficulty to meet. He takes pay out of the store; but the grocer sells all kinds of produce such as meat, etc., and Mr. Rood keeps quite a lot of men almost all the year round; and he also buys fertilizers by the ton. In that way he does not have much difficulty in trading out what is due him on the berries. Of course, the people who go there to the berry-fields after fresh fruit pay cash, and he gets quite a little in that way.

While I think of it, our two sons visited us last winter at different times, and they thought there were no strawberries in all the world better than the Florida product. They just filled up on berries grown by Mr. Rood, and " filled up " on cream also, furnished by his Jersey cows. You see, Mr. Rood makes a *specialty* of " strawberries and cream." Now, one reason why he keeps so many Jersey cows is because of the quantity of manure they furnish, which down south is worth $3.00 a load. Now, last but not least, I have got something else that comes in right here most beautifully. Some of you may come back at me and say, " But, Mr. Root, you forget to mention that you cannot grow those beautiful potatoes such as you showed us in the picture without buying a lot of expensive fertilizer at, say, three or four dollars a bagful."

Yes, I can. The hundred or more chickens I usually keep furnish me all the fertilizer needed to grow the produce; and the finest sweet potatoes as well as Irish, that I ever grew, are right on the ground where I have had my poultry-yard, and they are good big yards too, which I have had for several years.

Let us now wind up with a " summary " of suggestions just as the experiment-station bulletins give us. At the end of each bulletin they say something like this:

Potatoes can be planted all over Florida from October to February; and if intelligently grown and cared for they can be sold for something like $2.00 a bushel; and you can, as a rule, swap a bushel of potatoes for 100 lbs. of corn or other grain. A good part of the winter, eggs bring from 40 to 50 cents a dozen, and the poultry droppings will furnish the very best fertilizer to help supply the minerals that may be needed. Now, this being true, how can anybody say we cannot grow chickens in Florida because the *grain* costs so much?

Let me add, in closing, that my colored man, Wesley, has had charge of my chickens since I left, May 1. He has work around in the neighborhood, so it is not much of a task for him to look after the chickens mornings and evenings, and he has just now sent in a report, for this present month of May, of an average of over three dozen eggs a day from about fifty laying hens. He takes the eggs to market every night, and swaps them for grain. Of course, eggs now are only 20 cents a dozen; but the three dozen eggs pay for the feed of not only the fifty laying hens, but as many more pullets not yet quite old enough to lay, and still leaves quite a fair margin every week to pay him for his morning and night visits.

HOW TO MAKE A HOT-BED; ROOTED CUTTINGS, POTTED PLANTS, ETC.

When I reluctantly left my garden in Florida, and came here where there is frost, about May 1, for a few days I felt lost because I could not see " things grow." One of the first things I did was to order a big wagonload of well-rotted stable manure. Down in Florida it is $3.00 a load, and you can not get *old* manure even then, or not often; but here in Ohio liverymen deliver it for only $1.25 a load, and a big load at that. Well, next day after he had pitched it on a pile on the edge of the garden I noticed it was smoking. This was specially noticeable after a hard frost. (We had several hard frosts the first week in May, and one light frost on the 15th). Later, as I did not wish my precious manure to " burn up " I took a rake and spread it out, leveling it so as to let it cool off. In doing this I noticed it was almost boiling hot, and it occurred to me that, if I could throw some good soil on it, it would be a nice place to start seeds. Then my eye caught sight of an unused hot-bed sash over in my son-in-law's garden. All there was wanting, under the circumstances, was a frame or wooden box, without top or bottom, of the size of my sash, to be placed over the hot manure. Now, I was in a hurry; but I recalled that in the basement there were some pieces of boards left by the carpenter. There were none that were 6 feet long the size of my sash; but by taking two short ones and lapping them together I made two pieces for the sides of the sash, exactly 6 feet long. In a similar way the smaller bits made the end pieces, 3 feet long. With hammer and nails (but without any saw or other tools), I soon had a very serviceable frame or box for my hot-bed with sash on top of it. Now, down in Florida May is the dry month. My man Wesley writes me to-day, May 18, that there has been scarcely a drop of rain since I left; but here in Ohio—oh dear me! every thing has been swimming in water for the past two weeks. I managed, however, to find some of our clay soil that was dry enough to sift, and soon had two or three inches of this soil covering the hot manure inside of the box.

Just a word about getting good soil for a hot-bed or cold-frame. Florists go long distances to get the right kind of material for "potting-soil." If there is a creek or stream near you, where the dirt or soil is washed down the gullies, you can often find an abundance of very nice friable loam. Perhaps a little sand has washed in with it, though it is a clay soil; and this wash from the hillside is often the very nicest material to help make potting-soil. Let me digress again.

Last fall our people bought a carload or more of sweet-clover seed with the hulls on. To save transportation charges to our customers a clover-huller was employed to take the hulls off. Well, these hulls lay in a heap all winter; and this spring, when my eye happened to catch on to them, it looked like a pile of old well-rotted manure. There was a heaping wagon-boxful, and I had it placed right opposite my hastily made hot-bed. This was sifted and mixed with the soil I have mentioned, and I had a "compost" that should have made any gardener happy. Well, after my hot-bed was fixed I planted melons, squashes, lettuce, radishes, beans, some dasheen tubers, and a little of almost every thing else. Then I went up to the greenhouse in our town and got a dozen potted tomato-plants. The manure at first was too hot, even for the tomatoes; but when it cooled off a little I put them clear down where the roots could go into the hot manure if they wanted to; and just now, May 18, I have a little greenhouse that delights my heart. Squashes, melons, and all these rank feeders that love bottom heat, are just doing their best.* Of course I have to give them ventilation when the sun comes up; but in the middle of the day my hot-bed is shaded by some evergreen trees. The ground is yet too wet to make garden outside, although I have had my furrows marked out. My melons, squashes, etc., will be transplanted outside as soon as the weather will permit; and under each hill I am putting the manure and rotted clover chaff.

Much is being said in the papers now about the "backyard garden" as well as about the back-yard chickens. Well, now, it will not pay you to fuss with a small garden unless you can make the ground exceedingly rich. Hunt up the proper materials, and work them over well together, then put a shovelful of compost under each hill, and you will get enormous crops. It is some fuss and bother; but I tell you no one knows as yet how much stuff may be grown on just a few square rods of ground if you feed and water the plants properly. Your ground must be well underdrained to take care of the heavy rains such as we have here in the North; and here is a nice thing about hot-beds or cold-frames:

When your stuff has already had too much rain, put on the sashes to keep it off. Some of you may say, when you read this, "This is the wrong season of the year to talk about hot-beds, cold-frames, etc." Well, that is true to some extent; but you can keep it in mind and be ready to push things another season. And there is one thing more about it. How many of you have had experience in paying out good money for choice plants and had them die under the scorching sun that is liable to come even in May as well as in June? Let me tell you how to avoid all such disappointments—that is, I can tell you how to take a plant that is almost dead and make it come to life, with just such an arrangement as I have described, but without the bottom heat. Have some good rich soil, say half manure. Put in some sand to make it friable, and have it carefully sifted so as to get out all the lumps, stones, etc. If you are not very strong have your glass sash hinged so it can be opened up and hooked against a post or tree. As a 3 x 6-foot sash is rather heavy, a coiled spring at each corner to help raise it up will be quite a convenience. I think it would be better to have the arrangement in the shade of a tree, or, say, a tree that will shade it in the middle of the day. If not, you will want a cloth frame to lay on top of the sash when the sun is very hot. Put a thermometer inside so you can have the heat just where you want it. Now, while the sash is in place, the air will be moist inside of the frame, no matter what the weather is outside. When you get some new plants, put them in this rich soil and keep the sash down and shaded in the middle of the day until the plants got well rooted. Then you can gradually harden them off and move them outside almost without a failure if you keep the matter of moisture just right. Do not water too often; and do not let the soil become either too wet or too dry.

ROOTED CUTTINGS; POTTED PLANTS, ETC.

I have often spoken of friend Reasoner's big establishment at Oneca, Fla., only five or six miles from my Florida home. Mr. Reasoner has collected valuable semi-tropical fruits and plants from all over the world, and, in fact, he is shipping them daily *almost* all over the world. Although they seldom have frost in that locality, he has quite a range of glass-covered greenhouses. Then he has *acres* of garden that can be covered in severe weather by cotton sheeting; and once in a while he has stoves inside to warm up the temperature. Now, one of his houses that greatly interested me was a glass house for making rooted cuttings. It is kept at a high temperature, and the air in it is always moist, and kept so by sprinkling not only the plants but the floors and walks. In this "forcing-house" he makes "rooted cuttings" of almost every thing for which there is a sufficient demand. For instance, he will take a mulberry-tree and cut the branches all up into little cuttings, perhaps two or three inches long. They are then set in moist sand until they take root. Then you may see not only hundreds, but *thousands* of little plants and little trees all the while being propagated in this forcing-house. I felt a good deal pleased to find out that the foreman of this house came from our *Ohio* Experiment Station.

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* The "Helianti" tubers (see previous mention) are making the biggest progress of any and all the rest.

Well, when these cuttings of valuable plants begin to send out their little white roots they are put into small pots with such a rich compost or potting-soil as I have described, and kept growing until the roots fill the little pots, and in this shape they are sent out to customers. The plants (soil and all) are slipped out of the pot, securely packed in damp moss surrounded with paraffine paper to hold the moisture, and then they will keep in good order for long shipments. During the winter I purchased thirty or forty potted plants of Florida fruit and flowers, put them out in my garden, and it was a great pleasure to me to see almost every plant keep right on growing almost as if it had not been transplanted. When these new fruits come into bearing I propose to tell you all about them. I have before mentioned friend Reasoner's voluminous catalog; and, if you are interested in Florida and in what can be grown there, it will repay you to get this catalog and study it. It gives one full information in regard to plants that are hardy enough to stand out without any protection; and it also suggests the best and cheapest way to protect tender stuff that might not stand the frosts that are *liable* to come almost any winter.

POULTRY DEPARTMENT

HOW TO GET RID OF MITES ON POULTRY.

We use bamboo 1½ or 2 inches in diameter, and about 5 feet long. We take a hot iron and burn a hole through the joints nearly the size of the bamboo; then at each joint take a saw and cut in a small notch ⅛ inch wide, ¼ inch deep in a straight line, so all will be under the perch when set up. Drill holes in the end of the perch to drop a spike in to keep it from turning. Do not use any spray or oil on them, but keep them clean so the mites will go in them; for when the chickens go to roost these lice do their feeding, and then hunt a nesting-place. If they are allowed to they will leave the chicken at night, and go into the holes under the bamboo, and fill the perch from end to end. Then all one has to do, a couple of times a week, is to lift up the perch, hold it up over a can of hot water or oil, hit it on the side, and see what happens. The results will scare you, for the pests will drop out in one long string. I have seen them come out in one mass not less than 3 feet long, and finally, after a few cleanings, one can get only about half a teaspoonful. The way we had our chicken-house fixed was to have the roosts separate from the building so that, when the chicken was on the roost, it could not touch the building. Use crude oil on the perch-holder legs about a foot off the floor to keep what lice are on the holder from going down on the floor and getting into the building; and if any spraying is to be done, take down the roosts and spray the house to make it healthy. The bamboo keeps the fowls' feet warm.

San Jose, Cal., Jan. 16. W. A. Barstow.

My friend, your suggestion is, I think, a good one. Down in our Florida home I have often noticed these bamboo poles, sometimes about as large as your arm, or perhaps larger, which we find lying around loose. I was wondering if those partitions at the joints could not be easily bored out so as to make a very strong, light, serviceable tubing. Your suggestion of a hot iron, I think, would work it out to a dot. This would be a cheap way, where bamboo is plentiful, to make "trap" perches. While in California years ago I saw water carried a considerable distance down the mountains by means of bamboo tubing. The only trouble was that the cayotes learned to gnaw holes through the tubing so as to "get a drink" when thirsty. We have gotten the upper hand of the mites in Florida with very little trouble by spraying with kerosene with a little cresol added.

CUTTING OFF THE SPURS FROM OLD FOWLS.

In the issue of Oct. 15, you speak of good mother hens, some being very old. We have several such mother hens five and some six years old, which we should like to keep, but they have long spurs on their legs which make them almost unfit to hover young chicks; and sometimes the eggs are broken by the spurs while the hens are sitting on eggs. Can these long spurs be cut or sawed off without injury or pain to the hens?

Ross, Cal., Dec. 27. Philip Schafer.

My good friend, we have repeatedly cut the spurs off from our old roosters with a little thin saw such as is used for sawing metals. You can buy such a saw and frame at any hardware store for from 10 to 25 cents. I suppose any fine saw will answer. It is done very quickly, and does not seem to trouble the fowls at all. I noticed in the poultry-journals something about the feet of the fowls bleeding; but I have never seen any thing of that kind. Sometimes these spurs are very sharp, and, of course, they are of no use at all to people like you and me who do not believe in cock-fighting. I presume they *could* be cut off with a pair of pruning-shears just about as well; but I think the saw will probably cause less pain and do a smoother job. I feel sure the elderly biddies will thank you for getting these abnormal growths out of their way.

HEALTH NOTES

SOMETHING IN REGARD TO GRAPEFRUIT, FROM A. I. ROOT

Our readers will recall that several times I have mentioned the benefit I get from grapefruit taken daily when I am in Florida. During the past winter our nearest neighbor, Mr. Harrison, has kept me supplied with great luscious fruit at only 40 cents a dozen. Many of them are so large that I used only half of one with my apple supper. In this connection in my reply to friend Vincent, in Kind Words for April 15, I forgot to mention grapefruit. I have several times alluded to the kidney trouble that obliges me to get up in the night. Well, just as soon as I have plenty of grapefruit I sleep until broad daylight, without any disturbance or annoyance whatever. Others have corroborated it.

The question has frequently come up, "If it is really true that the grapefruit has such valuable medical qualities, why not have it bottled like grape juice, just now (thank God) on sale in almost every corner grocery from Maine to Florida?"

Now, I do not know how much has been done in putting up grapefruit juice so it will keep; but another near neighbor is already at work on it, and has put it up in bottles such as are used for grape juice, and has kept it successfully for many months. The only trouble with it at present is that it is going to be rather more expensive than grape juice.

Just one thing more about grapefruit. I have not found it easy, when eating either grapefruit or oranges, to avoid getting "mussed up" more or less. If the juice happens to spurt out on your clothing it leaves a bad spot. Now, here is a suggestion: Get a straw, or several of them, such as are seen at every soda-fountain, and suck the grapefruit juice through a straw. Just cut a hole in the top and squeeze the juice into the cavity, and there you have it, all nice and clean, without any bitter from the white inside pulp or lining of the fruit. By the way, it has been suggested that this bitter principle of grapefruit not only *tastes* like quinine but *acts* like quinine in warding off and curing chills.

May the Lord be praised for this beautiful fruit that is both food and medicine; and may the time soon come when grapefruit juice, pure and unadulterated, will be as cheap as grape juice, which I firmly believe is just now (under the stimulus of the temperance wave) taking the place largely of beer and other intoxicants.

APPENDICITIS, OR SOMETHING ABOUT SURGERY IN GENERAL.

A good lady at the close of a very kind letter writes as follows:

> I do not think we can improve on God's plans. The medical men (many of them) say there is no use for the appendix in our day. I've yet to see the first one who regained health so as to do the work he might do if he had not undergone the operation. Their nerves are wrecked by the shock and the drugs they are required to take. These temples of ours are to be temples of the Holy Ghost.—I. COR. 3:7.

Many thanks, my good friend, for your very kind letter. Just a word about appendicitis. Our son Huber, while in school, had sudden attacks on and off for two or three years. They kept getting worse and worse, until the doctors said that, if he lived through the last one, as soon as he was strong enough he must have an operation. It was successful, and for ten years he has been well and exceedingly robust. Right *here* is the important point: He has never (since the appendix was removed) had a *single twinge* of his old trouble that kept coming at intervals for years.—A. I. R.

A KIND WORD FOR A. I. ROOT AND ALSO FOR THE DASHEEN.

After the 15th and 30th of the month I am always on the lookout for GLEANINGS. While I am not at present in the beekeeping line I like to read of the other fellow's efforts. I hope to be keeping a few colonies next year in British Columbia, where the climate is milder, and to which Province I am going this fall.

I like to read A. I. Root's Home page, and I trust he will live to keep up the good work many years yet. What he claims for the dasheen is all right, as I have grown and eaten them in the West Indies.

Calgary, Can., March 31. E. F. GRESHAM.

Gleanings in Bee Culture

VOL. XLII. JUNE 15, 1914, NO. 12.

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Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.
H. H. ROOT, Assistant Editor E. R. ROOT, Editor A. L. BOYDEN, Advertising Manager
A. I. ROOT, Editor Home Department J. T. CALVERT, Business Manager
Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLII. JUNE 15, 1914 NO. 12

EDITORIALS

A Big Supply Year

THE year 1914 will reach the high-water mark in the demand for bee-supplies. So far as we know, all the bee-supply manufacturers in the country have had a bigger demand for goods than in all their history. This looks as if the bee business were looking up. The great season of 1913, with a promise of another good one, has boomed the supply business away beyond normal.

Unusual Field-Day Meeting for Iowa Beekeepers

THE beekeepers of Iowa are to have an unusual opportunity to become acquainted with Frank Coverdale, of Delmar, Iowa, who has a national reputation as an authority on the growing of sweet clover. In the brief mention of this meeting in GLEANINGS under Convention Notices the date is given as July 7.

Beekeepers and farmers in general are going to know very much more about sweet clover ten years hence than they know now. Mr. Coverdale is one of the pioneers in finding new values of this old plant.

A Greater Demand for Power-driven Extractors

THE large honey-producers of the country are beginning to see that they cannot afford to take their honey with hand-driven extractors. One by one, the large producers are adopting the big outfits. They not only extract honey more cheaply, but, what is of considerable importance, they extract the combs cleaner. And here is still one more fact: The bigger the extractor, the less out of balance the reel will be on account of uneven weight of combs.

While the first cost of the machines is considerably more, they are not more expensive than a lot of little ones scattered around at all the outyards. In this day and age of the world it pays to draw the combs to one central extracting-plant, and cart them back again. For this purpose a small motor truck is far more satisfactory than a heavy machine.

Slightly Exaggerated Again

WE observe that Mr. H. G. Quirin, the queen-breeder at Bellevue, Ohio, according to the newspapers, will send out about six million queens this coming season from his place. Our subscriber who directed our attention to this suggests that our project at Apalachicola is a dismal failure in comparison.

We only mention this as another sample of newspaper exaggeration. The probabilities are that Mr. Quirin told the correspondent that he would probably raise somewhere around six thousand queens, and this might be possible. If Mr. Quirin should raise six million queens in a year, and he does his work all alone, he would be some hustler. In fact, there wouldn't be any chance for the rest of us to rear queens.

An Enormous Demand for Early Queens in 1914

NEVER before in all the history of beedom was there such a demand for early queens. The bee-martin seriously handicapped the queen-rearing operations in Florida that were to supply us with early queens. We wired queen-breeders all over the country for queens; but every one of them was swamped with orders of his own. In the mean time complaints began to come in from dissatisfied customers who sent their money to some of these queen-breeders, and who had received nothing in return other than an acknowledgment of the receipt of the orders. There was a big demand for early queens last spring, but nothing as compared with this year.

Mr. A. B. Marchant, who was to supply us with queens, was unable to get them to us as fast as required. The main reason for this was the bee-martin that would nip off his virgins as soon as they took their wedding-flight. One would think he could have cleaned them out with a shotgun; but they were too numerous.

The Prospects of the Season; Prices, etc.

Clover is just opening up in this locality, June 10; and while there does not seem to be as much of it this year as last, there apparently will be a fair crop. Indications all over the clover area of the United States seem to show it will be good; but for all that, there may be a short crop. The excessive hot wave over the country may blight the crop yet. It is too early yet to make any positive predictions.

In the mean time there is some uneasiness over the matter of prices. There is no denying the fact that there was considerable honey left over from last season. Many producers held out for better prices, and in this they probably made a mistake. If there should be a good crop of clover again, and a fair crop of alfalfa, prices will be a little easier than last year.

We are requesting our subscribers to send postal-card reports from their respective localities. Do not write more than one or two sentences. If clover is scarce, say so; if the drouth and hot weather have been excessive, indicate that also.

Later.—Hot weather is drying up the clover, and bees are not doing much. It begins to look bad for clover.

A Handy Scythe for Beeyard Work

It is not often that we refer to articles advertised in these columns; and when we do, it is *not* because we have been paid to do it. Our editorial space, and space in Special Notices, is not for sale at any price; but when we do mention favorably any article that has been advertised with us it is because it has unusual merit. A case in point is the imported scythe blades advertised by the Marugg Co., Department C, Tracy City, Tenn. The blade is very light and thin—almost as thin as a Gillette razor-blade, but it has a very rigid back. It is very wide nearest the handle, and tapers to a sharp point. The snath that goes with these blades is very light also. The tool as a whole is the handiest thing to mow around a hive with of any thing we have ever tried; and it is away ahead of a common scythe except for mowing brush. After you get the "hang" of it you will like it and wonder why we Americans do not use it more generally. This same tool is used all over Europe.

We placed one in the hands of an old countryman. His eyes twinkled at once as he said, "Dot's de tool for me." And he knows how to sharpen it too.

The company furnishes a little anvil and hammer to hammer the blade, and then it has an edge given to it with a special whetstone.

Safe Arrival of the two Last Carloads of Bees from Florida

The last two carloads in charge of our two men, Mr. J. E. Marchant and J. P. Anthony, arrived at Medina June 2. In one of the cars we put 13,000 lbs. of tupelo honey that we extracted, and some wax that we had bought, billing the cars as "bees, honey, and wax." The other car had bees only. Mr. Marchant had planned to bring back 800 colonies and 500 three-frame nuclei; but he brought back 650 colonies, and nearly the full number of nuclei. The mosquito hawks (dragon-flies or devil's darning-needles, as some call them) are very destructive to bees and queens in the South at certain times of the year. Said Mr. Marchant, "These mosquito hawks did us nearly a thousand dollars of damage. They were so bad, indeed, that we were compelled to shut the bees in the hives in spite of the extremely hot weather. This necessarily caused some bees to worry and die; but the loss in this way was nothing in comparison with letting the bees fly, only to be killed by the thousands by these fell destroyers."

A northern man can scarcely realize how destructive these agents are. They come on at certain seasons in great swarms in different parts of Florida and in different months. Sometimes they come early and sometimes late. Said Mr. O. O. Poppleton, "It seems almost as though the bees learn to stay in their hives, as they easily recognize their natural enemies in this Southland."

Our recent trip through Florida was to find some place where mosquito hawks do not get in their destructive work, but we found no such place. The result of closing in our bees, together with the fearful work of the mosquito hawks, cut our shipment down nearly 150 colonies—at least we were that number short of our original estimate.

Our Mr. Marchant who went down and came back with the bees says this season has been one of the worst that was ever known. The cold backward weather delayed the blooming of the tupelos; and when they did come out the weather was so extremely hot and dry that they were in bloom only about half as long as they usually are. But in spite of this he increased one carload of bees up to 650 colonies and 460 three-frame nuclei, took 13,000 lbs. of honey, and drew out nearly 6000 frames of foundation. Another year he thinks he can do much better, as conditions can hardly be worse.

Now, then, was the experiment a success? Even if we take into consideration that our increase and honey crop fell short, our scheme was not a failure by any means. The project will pay out, and leave us something to the good. In addition we acquired some valuable experience, all of which has been or will be given in these columns for the benefit of the public at large. When viewed from this standpoint our project was a big success. In all the history of beedom we do not believe that any one ever before moved bees south, and made a three-and-half-to-one increase. It must not be forgotten that, in spite of the unfavorable weather, we drew out nearly 6000 frames of foundation into fine nice combs. We have always been short on combs; and we now have the nicest set of wired combs we ever had. If we leave out of the account entirely the publicity item, which we feel sure means a big boost to Gleanings, we are still on the good side of our ledger account.

As clover is very promising, and basswood looks well, our Florida project will pay out bigger yet if we get any kind of crop. We now have eleven yards of bees. The outyards run for honey will contain about 60 colonies, or what is the equivalent of two truckloads. Our light gasoline-truck is able to carry 30 colonies at a time. With this truck we can deposit enough bees at the outyard to make three or four yards in a day.

By the way, the big team and the wagon can haul only 30 colonies. It takes the team a good part of a whole forenoon to go to an outyard and back; but the gasoline-truck will do the same work in an hour; and, what is of considerable importance, it does not make any difference if there are a few bees leaking out of the hives.

There will be some further illustrations showing the whole project.

A Big Field-Day Meet at Medina

Preparations are under way for a big field day at Medina, July 9 and 10, under the auspices of the Ohio State Beekeepers' Association. At the last convention, held in Athens, it was decided to have a field day at Medina, on a date to be agreed on later. Many have desired to see the A. I. Root Co.'s manufacturing plant, their queen-rearing operations, and the various methods for taking honey with a power extractor, a modern capping-melter and separator; and a few have said they desired to see A. I. Root himself, who has agreed to be at home on that day. In this connection, the President, Prof. W. A. Matheny, writes:

> I fancy that I can hear all our beekeepers say they are anxious to see your father, A. I. Root. I trust that his health will be such that he will be able to give us a short talk. I confess to you that to see him is my motive in working up this meeting. Of course, I am anxious to go over your plant again, and I am anxious to have our beekeepers see what a wonderful place you have; but I know that every one will enjoy most the privilege of hearing A. I. Root.
>
> Athens, O., May 29. W. A. Matheny.

It is proper for us to state that, while we did not invite the State Association to hold its field day at Medina, the organization is more than welcome, as well as every one else who would like to be here on that day, whether they live in Ohio or not. Estimates have been made that there will be 500 people here, including a few prominent beekeepers from all over the country. It is quite possible that we can arrange to have the veteran Dr. C. C. Miller, of Marengo, Ill., and perhaps G. M. Doolittle. Mr. Doolittle is a good speaker as well as a writer. It is worth going a hundred miles to hear either of them talk.

The date is set in July so that beekeepers will not be tied up at home on account of their honey-flow.

As hotel accommodations are not extensive here, we shall probably have to arrange for one of our warehouse rooms where we can sleep the men on cot beds and straw. The women and children can probably be accommodated in the homes of the town.

We have never felt that it was proper for *us* to invite any beekeepers' organization to meet at Medina, on account of the indirect advertising it might give to our company; but when an organization takes the initiative, as the Ohio State Association has done, we are glad to co-operate in making their field-day a success. In this connection, every one who expects to come here will send a card to Prof. Matheny in order that he and ourselves may be able to make proper arrangements to accommodate the people.

Many will arrive on the afternoon of July 9; and while there will be some field-day operations on that day, the principal part of them will doubtless occur on the day following. We do not know what the program will be, but we suppose there will be addresses on the evening of the 9th as well as during the day of the 10th, accompanied by demonstrations.

Those near by can bring their lunches, while others will be served, probably, at 35 cents a meal at the hotels, restaurants, and by the ladies of some of the churches.

Some Wonderful Bee Country in the Cold Northwest

Mr. G. C. Rahn, box 293, Haileybury, Ontario, Canada, called to see us a few days ago, and told us something about the possibilities of keeping bees in his part of Canada. As an evidence of what can be done by a man who thoroughly understands his business, he ordered from the southern part of the United States a number of pound packages of bees with queens. By careful stimulative feeding he built each of these pounds of bees into colonies so that they averaged that season from 70 to 75 lbs. of clover comb honey in Danzenbaker sections. He also has produced as high as 300 lbs. of comb honey from one colony, wintered in his cellar, spring count. He had other yields almost as good from other colonies he had wintered. It takes a good beekeeper, of course, to get yields like these, even in the best of localities. But no beekeeper, no matter how expert, could accomplish these results unless he were in a good locality.

There are large areas in his country where bees can be kept very profitably, especially after the land has been cleared. Willow-herb, raspberry, and clover follow on in quick succession. The cattle from the lower land, in their droppings distribute clover all over this newly cleared land. The timber is cleared off, leaving brush and stumps, which are burned down clean—root, branch, and stumps. The land will then be found in fine condition for cultivation, and will grow almost any thing that thrives in the Northern States—especially the clovers, which are very abundant.

As yet, beekeeping in his part of the country has not made much of a stir; but there are splendid opportunities for the practical, energetic beekeeper who learns thoroughly the locality; but probably only a few could make a success in that cold country. Bees have to be confined in cellars for 20 to 22 weeks, and during a part of the time the temperature has to be kept up by artificial heat. The temperature goes down to as low as 50 degrees below zero in winter, and in the summer it goes as high as 108. It is a country of extremes. The cold winter weather will kill off the bees by the wholesale unless one thoroughly understands the art of wintering, said Mr. Rahn. An ordinary cellar will not do. Some have built expensive concrete cellars; but the walls are too cold and damp. Mr. Rahn has been successful in wintering his bees in a sort of log-house cellar. The walls are lined with logs, and the top is covered with logs, and then the whole is buried deep. The logs absorb the moisture, so that the bees winter very much better than in stone or concrete cellars. Taking it all in all, the problem of wintering in that country is a serious one, and only a few succeed.

Mr. Rahn is particularly interested in getting bees from Florida in May because he says he knows what he can do if he can get the bees early enough. If bees can be brought from the South in pound packages cheaply enough he can build them up into colonies in short order.

In this connection he indorses our plan of making increase in cellars. We told him that quite a number of expert beekeepers were inclined to poke fun at it as too visionary and too uncertain in results. Said he, " Mr. Root, the plan is all right. I have repeatedly put three-frame colonies in the cellar, and brought them out ten-frame in the spring, notwithstanding the temperature outside was far below zero practically all winter. I use and recommend for this purpose cakes of candy the same as you use and recommend."

Another thing he has learned is that, when the colonies are too strong for their winter stores, they are inclined to have dysentery; but he says a colony of moderate strength, with pure granulated-sugar candy, will have no dysentery, and will probably be stronger than when it went into winter quarters.

In speaking of the different races of bees, he was rather fond of the Caucasians, because they breed up so well and stand cold. They do not swarm any more for him than the Italians. Our friend J. J. Wilder, of Cordele, Ga., will take note as it confirms his experience with them in the Southland. With us they swarm as badly as the Carniolans.

We said to Mr. Rahn that doubtless many would like to settle in that country, and asked what was the procedure to get land. The Ontario Government is offering favorable inducements to settlers. The land is sold at fifty cents per acre in 160-acre plots; and when a patent is secured, fifty cents per acre more is required.

Our Canadian readers will be interested, and possibly some on this side of the line; but remember the winters are bitter and cold; and if you are going to keep bees it is important to know whether you or your families can stand such cold, even if you feel that you can winter the bees.

STRAY STRAWS

Dr. C. C. Miller **Marengo, Ill.**

J. M. BUCHANAN, in your valuable list, p. 432, you give dandelion as a yielder of nectar. Here it yields much pollen as well. Your alsike is "almost equal to white clover." I think it's better in the North.

MY women folk are daffy on grapefruit, taking it regularly every morning. But they object to taking the juice through a straw, as given by A. I. Root, p. 442, if that means "without any bitter," for they specially relish the bitter. And they don't want any sugar with it either.

J. L. BYER, the name you cannot recall, p. 338, is G. W. Demaree, and right you are to commend his plan for prevention of swarming. You speak a little as if it is only to be used "if there are no signs of swarming at the time of the operation." If I am not greatly mistaken it works all right after cells are started, only you must cut them out, and the plan may even be used after swarming occurs.

YOU'RE right, Louis H. Scholl, p. 367, in commending "hives in pairs." If I am correct, that plan originated "in this locality," and you cannot urge too strongly that putting hives in pairs is practically spacing them further apart; in other words, by putting them in pairs you can exactly double the number of colonies on the same ground without at all increasing the danger of going to the wrong hive. [This scheme is all right.—ED.]

WESLEY FOSTER, you say, p. 327, that with a rapid uninterrupted flow a one-inch top-starter and ⅝ bottom-starter works well. Won't that middle space contain much drone comb? and do you think that makes a nice finish? Besides, if you don't use excluders the queen will come up to lay in that drone comb; and if you do use excluders the bees will delay sealing, waiting for the queen to lay in it. I'm much interested in your contemplated experiments.

MAY 29 finds colonies strong in number. Dandelion is just closing a busy career, and white clover is beginning to bloom. It was never more plentiful, but will it "honey," as the Germans say? The ground is so full of water that clover can hardly dry up for some time, if it yields nectar at all. Will the knowledge that ten supers apiece are ready for them spur the bees to effort, or will it utterly discourage them? [This is a year of promise all over the country for clover districts, so far as we have been able to learn. The fact that the bee-supply manufacturers are all busy is significant.—ED.]

D. E. LHOMMEDIEU'S plan for draining cappings seems good. Save the cappings in a vessel with solid bottom without giving them a chance to drain—all the better if considerable honey is with them—then take a stamper perhaps 2½ inches in diameter, which is cut off square at the lower end; stamp the cappings into fine pieces, and the honey will then drain readily from them when given an opportunity. The draining may be hastened by putting the cappings through a honey-extractor.

YOU say you don't catch on to my question, Mr. Editor, yet think the answer easy, p. 365. Glad if it puzzles you, if I can only get your attention to the sort of puzzles you're all the time handing out to your readers. If you had ventured an answer at all, like enough you would have said that if Smith gets 50 pounds of honey per colony, and Jones gets 60 pounds, then Jones has 20 per cent greater success than Smith, which may be quite right and may be very wrong, because of the loose statement in the question. If the two men produce the same kind of honey, 20 per cent is the right answer. But if Smith produces extracted and Jones comb, then 20 per cent is too small an answer; and if Smith produces comb and Jones extracted, then Smith is the more successful, according to general experience. I hope you've had so much guessing that you'll stop making your readers guess in every number of GLEANINGS when you let some contributor mention so many pounds of honey without specifying comb or extracted. And please, please, when mentioning foul brood, don't leave any uncertainty whether it's American or European. [When a correspondent does not tell whether he is referring to European or American foul brood or comb or extracted honey, we can not very well add the qualifying adjectives without danger of making him say what is possibly not true. It would be considerable trouble to write to every one, especially those who write only once a year or once in five years, to find out the specific thing referred to. About all we can do is to request our regular correspondents to say whether they mean comb or extracted honey or American or European foul brood, and we are making this request at this time. When, however, a correspondent describes his extracting outfit, or mentions it incidentally, it is hardly necessary for him to cumber up the article by adding the word "extracted" every time he refers to his crop.—ED.]

SIFTINGS

J. E. Crane — **Middlebury, Vt.**

I do not remember that we have ever had a chemical analysis of pollen. If we have had, we should know better what to substitute for it where it is lacking. I am coming more and more to appreciate the value of pollen and its stimulating effect upon brood-rearing.

* * *

Mr. J. L. Byer, on page 248, says he is using hives made or painted by his grandfather thirty-two years ago still in fairly good condition. I think I can go you one better. I have double-walled hives in fairly good condition that I made and painted 44 years ago. My! how time flies!

* * *

"Bees that cluster on the outside of the hive are wasting their time," says Wesley Foster, page 614, Oct. 1, 1913. I don't feel sure about that. When honey is coming in freely a large amount of evaporating must be done, and I see no good reason why bees can not do this as well on the outside of the hive as on the inside—perhaps better.

* * *

Mr. Byer, page 246, April 1, thinks that there is more danger from disease among bees in the city than in the country. I believe he is right. You may find them in an out-building or in an attic, or, as I did on one occasion, in the upper story of a barn. There is also greater danger of contracting disease from bottles of honey that have been emptied and thrown on a refuse-heap or from broken barrels, or packages of honey left where bees can get at them.

* * *

A long time ago some one looked up at night and saw the stars, and said, "The heavens declare the glory of God, and the firmament showeth his handiwork." And he was right, for they do. But it is just as true to-day that the hills and valleys, forests and fields, the birds, the bees, the flowers speak of his wisdom, goodness, and love. And it is just grand, these warm spring days, to go out in the midst of such surroundings and work with the bees. Let us not forget those who are confined to the workshop or factory, and thus rarely hear the song of birds or the hum of bees.

* * *

SPRING DWINDLING IN VERMONT AND ITS CAUSE.

Bees were considered in good condition in western Vermont on April 1; but the 15th of May will find many yards in rather bad shape, with some dead colonies, and many greatly reduced in number—in fact, we have had more or less spring dwindling.

What is the cause? Largely, weather conditions, I believe. The weather station near by reports the coldest April in over thirty years—some nine degrees lower during April than any other April since a record has been kept in Burlington, Vt., thirty-one years. What was worse than the average low temperature was, the large number of severe freezes we have had. Every week the temperature fell so low as to kill most of the unsealed brood except in the strongest colonies. On May 1st the mercury stood at 26 degrees, and on the 13th the mountains east and west were white with snow that had fallen during the night.

Another difficulty was the shortage of pollen. The cold killed many flowers, and the weather was so cold that little could be gathered from such as withstood the frost. Only strong colonies could keep up under such conditions. The old bees died off rapidly, and no brood-rearing could be carried on to replace them with young bees.

* * *

ENOUGH TO MAKE ONE MAD; MELTING HONEY AND PLUGGING TIN CANS.

"Be ye angry and sin not" is pretty good advice; for if there is any thing that makes a man act like a fool it is getting angry or getting drunk; but it is not always easy to control one's self. A while ago I was melting up some honey in five-gallon cans, and out of twenty or thirty cans no less than ten had holes in them—mostly nail-holes, I think. We melt in warm water; and if we set a can in that has a hole in the side, when the honey melts it will run out and the water run in, just as a jug of water turned bottom up will let the water out and air in—first one and then the other. It is not conducive to good nature to discover, when you come to empty the honey from your can, that it is half water, as we sometimes do. We try to find the holes before we put them in the water, but do not always succeed. But if we find them, what then? Why, just solder up the holes. Yes; but the moment the hot iron touches the can near the hole it will melt the honey before it melts the solder, and out it comes, making it impossible to make the solder stick. My! but wasn't it provoking? But it occurred to me at last that the holes could be stuffed with light cotton cloth with the point of an awl or dull knife. I tried it, and it was an entire success; and I note it down for the benefit of others.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

Several requests are still on my desk for me to give my methods of swarm control, together with my spring management, with the divisible hives I use; but so far it has been impossible for me to write this up as fully as desired by these enquirers. This I regret very much, as I feel that, since we have been able to keep down swarming to a minimum in such a large number of apiaries, and for so many years, this information may help others to hold the bees in check to some extent at least. This year it happened that we had continued rains and bad roads to such an extent that we could not visit the apiaries for weeks, and some of them we could not reach at all during the entire spring months. The spring was exceptionally favorable for swarming; and as a consequence of our inability to make the necessary manipulations we lost many swarms. In a few yards nearer home, and in those near good roads, that could be reached at the proper time, the bees did not give us any trouble.

I am taking this opportunity to explain why this question has not already received my attention.

* * *

"COMB-HONEY SANDWICHES."

Little slabs of comb honey wrapped in clean paraffine paper with a nice colored band of paper around all, to hold it together, as the sandwiches are put up that are handed us at the railroad-station restaurant now, ought to prove a splendid way of disposing of a large lot of comb honey. It would be cheaper to produce the comb honey in shallow frames, cut it out into suitable pieces, wrap it, and hand it over to a customer. This is intended for the retail trade, of course. For shipping to market these "honey sandwiches" need only to be placed in cardboard cartons, with so many to a case, and the cases crated together for shipment. Pound packages of comb honey of this kind can be produced much cheaper than pound sections; and although they may not take the place of sections where section honey is especially demanded, yet I do feel that they would find a good demand with those people who care more for the honey they get for their money than for the appearance they pay for in the section honey.

* * *

A VALUABLE ARGUMENT.

Some time ago I outlined an experiment which could be easily made to determine which would be the cheaper to use, syrup or honey. The test is made by placing on the table two equal-sized tumblers and filling one with honey, the other with syrup. Enough of either is to be spread on the bread with which it is eaten, to "give one a good taste of either the syrup or the honey." Close observation will reveal the fact that it takes a good deal more of the cheaper-priced syrups to "give one a good taste" than if honey is used. It will be found that the use of honey at a higher price than the cheap syrups will go further, and, consequently, be the cheaper in the end. And not to be forgotten is the fact that the honey is by far the more healthful. Its constant use will not give any evil effects like the many glucose and other corn syrups on the market. We have recently used a small pail of the lightest-colored syrup now on the market; and while it "tasted" quite good for a few meals, for a change, we do not care for it any more. We simply tired of it from the effect that the glucose and corn syrups have on our systems.

* * *

OUR FLOOD LOSSES AND THE PROSPECTS.

A large number of our friends have sent me encouraging letters since we experienced the heavy flood losses in the Brazos River Valley last December. These letters are certainly appreciated. We feel more encouraged to go on with that which we still have, and we feel the loss much less.

The weather the past winter and this spring has been one continuous time of excessive rainfalls. Since October of last year there has been in this neighborhood 29.74 inches of rainfall, and it has rained heavily all day today. This is a very exceptional occurrence for this part of the State. Other parts of Texas have fared still worse, while a few localities did not suffer from an excessively wet season. Indications are that there will be still more rain for some time, and we can not tell when the end will be.

Roads are almost impassable, and work in the outapiaries will be impossible for some time. Our work is being delayed considerably. But the prospects for a good honey crop in this part of the State are excellent so far, although it may prove to be too wet a season for best results. We can never tell, until we have made our crop, what it will be, as some seasons are too dry and others too wet.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

March and April have paid in full all of the days borrowed from May. The closing days of the month were of a variety that would have fitted the season better in the early spring. Fog, fog, fog, has been the complaint of the beekeeper, and justly so, for it has done no less than cut in halves the crop of sage honey.

* * *

"BEARING" THE MARKET INSTEAD OF "BULLING" IT.

The editor of the *Western Honey Bee*, in the May issue, throws a bomb-shell into the honey market that will not soon be forgotten by the beekeepers of the State. It is hard to imagine any thing that could have been done that would have depressed the honey market to the extent that the article spoken of above has done. The beekeeper is always more or less prone to be nervous over the markets, and such reports almost scare them to death. I have heard year after year just such reports, but, as a rule, from representative honey-buyers; but this, coming from the pen of the very man above all others who should bull the market to the best of his ability, has caused profound indignation among beekeepers of this section. The editor of the *Western Honey Bee* is a personal friend of the writer, and his knowledge of the bee business is fully recognized; but it is my opinion that he has made a mammoth mistake in giving such a pessimistic report of the market, especially when every condition locally was in favor of a steady market, at least, rather than against it, so far as the outlook for sage or other white honey is concerned. The eastern output at that date had not yet begun, and there was a chance rather for a shorter crop than last year if we follow the trend of events in the past. The few carloads of honey in and around Los Angeles is not going to injure the market to any great extent if there is an outlet elsewhere.

The writer has followed the bee business 18 years in the East, and is in position to say that it is indeed very seldom that one honey crop follows another the next season in the same locality. If I may venture a prediction, the East will not have as large a crop this season as last. One of the unpardonable things said in the above article is the following quotations: "And let us welcome a period of low prices for honey as wonderfully stimulating to its consumption;" again quoting, "When two or three sections of good comb honey can be bought by the working man for a quarter, and when the tin pail can be filled at the grocery with a gallon of good extracted honey for 50 or 60 cents, then we can do business; there will be a demand that all the beekeepers of the coast will be unable to supply." The last of these quotations is absolutely true, for the reason that, with honey at the price named, there would be few beekeepers to supply any demand that such conditions might bring about. Honey in its purity is a luxury, has always been so, and always will be, from the fact that the bee business is uncertain at the best, so much depending on the vagaries of nature, the loss by disease, and at the present time the expense of equipping for the business. A man can not afford to pay the present prices for hives and equipment, nor even for bees, and sell honey at such prices. It would be the ruin of the industry from hive-factory down.

I see no reason why the beekeepers of Southern California should sacrifice the first crop of sage honey obtained for three years when, on the very face of the facts, the crop cannot be a large one. Raising honey to feed the poor is folly.

[There is a chance here for an honest difference of opinion as to the best policy to pursue. Perhaps it would have been better to have kept quiet; on the other hand, if conditions are as the editor of the *Western Honey Bee* reports (and there are some grounds for his fears) it would be folly to put prices too high, for the result later on would be a fearful slump, smashing the market into smithereens.

We agree with Mr. Chadwick that it is seldom that one good year is followed by another good one. We do not believe that we shall have as heavy a crop of clover in the East as we had last year. If clover falls down even a little it will boost prices in the West, without question. Undoubtedly our policy at the present time should be optimistic until we can learn what the East is going to do as well as some parts of the West. A few carloads, either of comb or extracted, here and there, left over from last season, should not depress prices too much. For the present, at least, it is wise for us to "look and listen." Prospects for a clover crop are good. But prospects have been just as good before, with practically no honey later.—Ed.]

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

SURPLUS INCREASED TENFOLD, ETC.

I suppose I have been keeping bees in a crude form, or in the old-fashioned way, for I have allowed my bees to swarm naturally, hiving all prime swarms, one in each empty hive, and doubling up after-swarms till a fair colony was made. In this way I have secured an average of fifty pounds from each old colony in the spring, and supposed I was doing fairly well until a few weeks ago an old man who had been making a specialty of beekeeping for thirty years told me that the surplus from any apiary could be increased tenfold by allowing only *one swarm* from each colony. Now is that right?

Without doubt the statement is exaggerated. It would seem that you can safely count on fifty pounds of comb honey in a good year from each good colony, and allow them to swarm just as they please. With one hundred good colonies, that would amount to 5000 pounds. Now by allowing only one swarm from each—which any active man could easily manage—if that amount could be increased tenfold, or to the amount of 50,000 pounds, the crop would be worth, at ten cents a pound, $5000. Perhaps this is something in which location " makes all the difference in the world;" and if so it would seem that the most of us must claim a location much inferior to that in which this specialist beekeeper lives.

However, there is *something* in what you were told regarding restricting your swarms to only one from each old colony in the spring, where natural swarming is allowed. In my early years I allowed the bees to swarm as they desired; but I soon found out that, if any after-swarm left the parent colony, all prospect of any surplus honey from the parent colony went at the same time, the prime swarm giving all the surplus, as the after-swarm would do no more than to build up for winter, as in the case of the old colony. But by limiting the old colony to just one prime swarm, the old colony, if rightly managed, gives fully as good a yield in surplus as the prime swarm. In this way the colonies may be doubled each year, and the surplus doubled as well.

With the bad wintering which came to the bees along in the eighties, this doubling during the summer was quite a comfort to the one who found his losses each winter to average fifty per cent of what he had in the fall; while an average of 100 pounds of comb honey for all of those ten years of the eighties gave a zest to the beekeeper's life not found in the fifty-pound yield. But the days of swarms to be hived in separate hives have seemingly passed by with the most of our practical apiarists. By taking this swarming matter in our own hands, swarms can be made at pleasure, or swarming be done away with, and a yield above what could be done by natural swarming brought about. By retarding the desire of the bees for natural swarming through putting on a hive of combs until the yield is about to come on from the flowers which give us our surplus crop, and then placing this upper hive of combs, now partly filled with honey, by way of exchange for the lower hive of brood, and then shaking all the bees from their brood and the hive containing it, so that they run in to what was a few minutes ago their surplus apartment, great results can be obtained in the sections, even in a poor season. At time of shaking, supers of sections are put on, and thus the sections become the storage room, while the honeycombs the bees were eagerly storing in a few hours ago are being emptied to give place for the eggs the queen will be depositing in the cells as fast as the honey from them is carried above. And that which is coming in from the fields, mingled with that which the bees are carrying up from below, causes the sections to be filled as by magic, and all swarming is done away with.

WHY BEES DO NOT LOSE THEIR STINGS WHEN STINGING OTHER BEES.

Another correspondent wishes me to tell why bees when stinging other bees do not lose or leave their sting, the same as they do when stinging the beekeeper. From what I myself have seen, a slight prick is all that seems necessary to kill a worker-bee, the sting not entering far enough so that any of the barbs on the sting enter the wound. This does not seem to hold good in the case of the queen; for on several occasions where I have had queens stung in the thorax, where the wings, legs, abdomen, or head is attached, the sting was universally left. On the other hand, most of those who have kept bees for any length of time have noticed how quickly a colony into whose hive a small runaway swarm has come will dispatch that swarm without leaving a sting in a single bee. An old beekeeper once told me that a bee had to strike a person, as does a hornet, in order to sting, otherwise she would not sting at all. This hardly holds true; but she needs the impetus motion gives her, or something to hold her to the work, so to speak. Certainly a " laying hold " is necessary for the bees to drive the sting into any thing so that it will penetrate beyond the barbs that are on it; and when penetrating to such a depth, the sting must be left.

GENERAL CORRESPONDENCE

GOOD COMBS; THEIR VALUE, AND HOW TO PRODUCE THEM

Nailing and Wiring Frames; Second Paper

BY ARTHUR C. MILLER

In a previous article I tried to show the loss in using poor combs, and how some seemingly good combs are not as good as they appeared. In this paper I will give the fundamental steps for securing combs of the highest quality in the most economical way. The methods I shall describe are those I use; and I describe them because with them I get the desired results. There may be better or more rapid ways, and other persons might use my methods more rapidly than I do. They are not new unless, perhaps, in some minor things, nor are they of my own invention save in two or three parts; but the union of them all is mine.

Before I describe the methods, I want to lay emphasis on the fact that good results are due to the attention to every detail, to having every thing right, and doing every thing as thoroughly as possible.

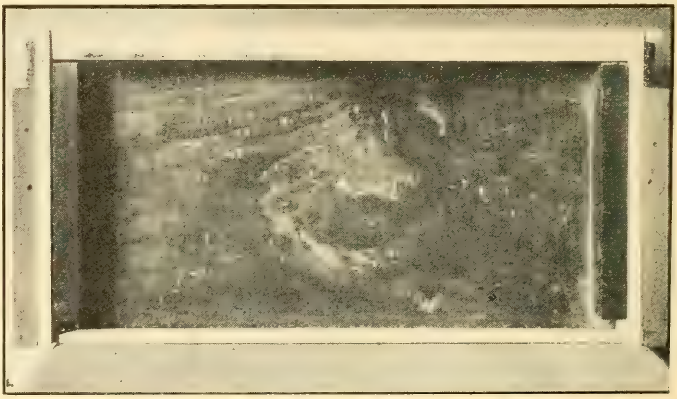

Fig. 1.—A. C. Miller's frame-nailing jig.

First, buying the frames. Get only good accurately made frames—those that are made of good lumber, and cut with sharp saws. I say, "cut with sharp saws," because some manufacturers are not particular, and send out frame stock with feathers enough on it to clothe a big flock of poultry. And those fuzzy edges hinder and prevent good work. At present prices every frame should be like fine cabinet work; and if they are not, then try some other maker.

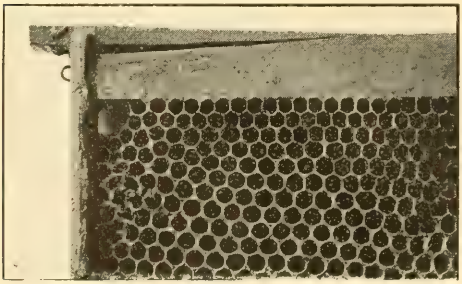

Fig. 2.—Broken frame that was nailed through the end-bar to the top-bar.

When good frame stock is secured, the frames must be nailed up *square,* and with nails which will hold them so. For accurate and rapid work a "jig" is indispensable. Beekeepers usually say "forms;" but by either term it is a device for holding the parts of the frame firmly in proper position while being nailed. There are all sorts of devices, but I prefer the simple one shown in Fig. 1, with an unnailed frame in place. It is a plain, thoroughly seasoned straight-grained white-pine board, with four cleats on the front, as shown, and two across the back—the latter to keep it stable when on edge, leaving the hands free for hammer and nails. No buttons or springs are needed if it is *accurately* made and the frames accurately cut.

In nailing I put two nails through the top-bar into each end-bar, and one through the end-bars into each end of the top-bar. This is the opposite of the manufacturers' instructions; but please remember I am telling the way *I* work. My way is more rapid; and, from experience with both ways, I like it better. I don't have frames break like the one shown at Fig. 2, which was nailed the manufacturer's way.

Rapid nailing of frames demands system. The different pieces should be stacked in piles, each kind by itself, and all pieces of

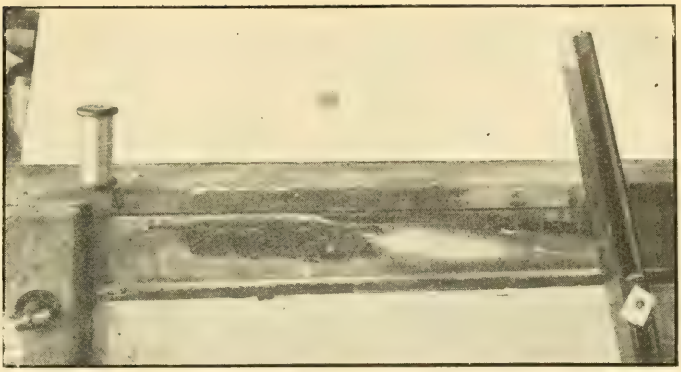

Fig. 3.—Winding the wire on A. C. Miller's wire-stretching reel.

each sort the same way, and all piles always in the same place on the bench. The nails should always be in one place, and the hammer should be of the right weight to drive the nails with the least number of strokes, and at the same time not so heavy as to bend them. When every thing is so arranged, work is rapid, the procedure being as follows: The two end-bars are put into the jig, and then the top-bar and the four top nails driven; then the one nail in each end. The bottom-bar is next inserted, and *two* nails driven in one end only, the other end being left unnailed. Some persons use only one nail in each end of bottom-bars; but I believe it poor economy. The frame is then removed from the jig, and the frames are piled in a convenient place for the next operation, which is putting in the staples. I nail until I am tired or the pile gets inconveniently high, and then change off to stapling.

Preferably (because more rapid) the staples should be put into the end-bars before the frames are nailed up; but the staples best for the purpose are so long that they project through the end-bars; therefore stapling is done after the frames are nailed. A metal block is used for stapling. It is like the wooden one which the manufacturers supply, except that it is a little longer. Try it and you will soon see why it is better. As fast as stapled, the frames are stacked with the unnailed ends of the bottom-bar, all in the same direction, and ready for the next step, which is wiring.

Wiring is a fine art. If one may judge by the many methods illustrated and described in times past, very few persons know how to do it in a rapid way or with the best results. Unless the wiring is thoroughly and properly done through every stage, speed is impossible, and satisfactory combs will be the exception.

The first step is stretching the wire. Wiring from the spool is an absurdity. The method I use is best shown by the photograph at Fig. 3. The big spool of wire is mounted on a pivot on which it will turn by a slight pull on the wire, but will not spin and cause the wire to kink and snarl, and this pivot is held in the bench vise. The reel, or stretching-board, is shown in detail in Fig. 4. This is pivoted on a bolt through the front of the bench, and is rotated by the right hand while the wire slides through a greased cloth in the left hand. If the spool of wire frictions on its pivot properly the "drag" will be uniform and all the wires will be wound on the stretching-board with uniform tension. When wire for about fifty frames is wound (count as you wind), the wire is made fast to a tack on the stretching-board, and severed from the spool; but *don't* let go of the end leading to the spool. Wind the surplus back and make the end fast to a tack in the end of the spool. You will not forget this precaution more than once, I assure you.

A word about the

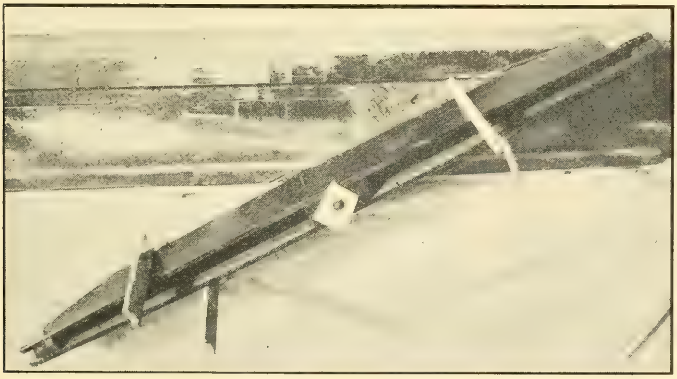

Fig. 4.—Stretching the wire on the reel.

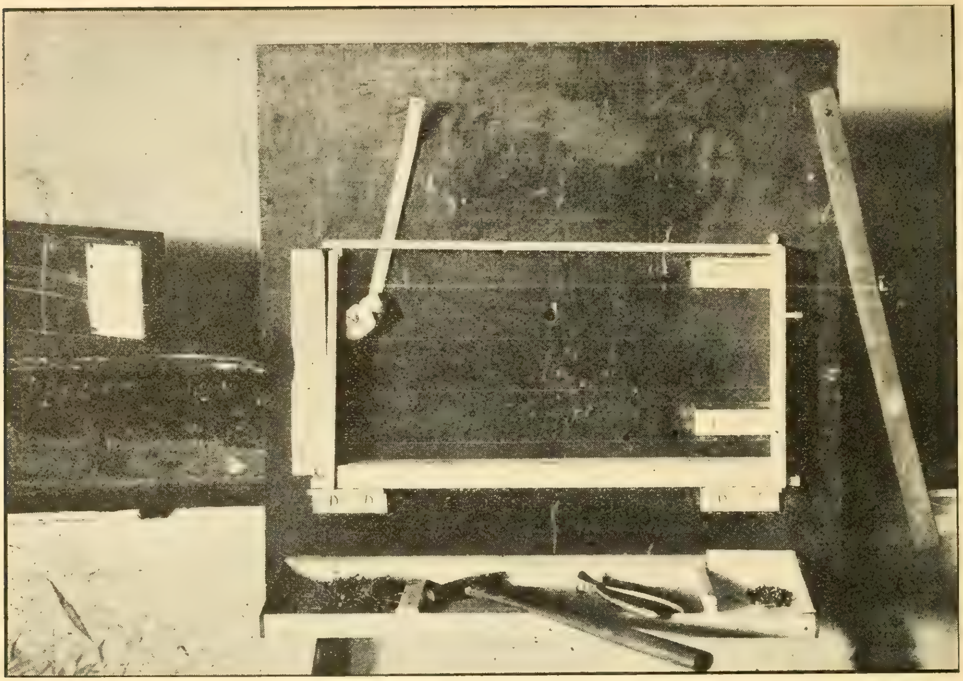

Fig. 5.—A. C. Miller's frame-wiring clamp.

wire, and handling it. Be sure that the wire you buy is new and bright. If it is brown or rough, send it back, for it has begun to rust and will be rotten, and break. Wipe machine oil or vaseline over the wire on the spool when received, then it will keep until you need it. I keep mine wrapped in an oily paper when not in use. In reeling it, the oily cloth keeps the salty moisture of the fingers off, assures a greasy coating to the wire, and also prevents sore fingers. Take pains to avoid kinks at all times. A kinked wire will break, and a broken wire costs heavily in time.

When enough wire is on the reel—fifty or sixty wires are all that stretch rapidly and easily—stretching begins.

A table-knife or putty-knife is slid under the wires on one side, the wires lifted slightly, and a stick pushed under—I use a frame end—and the operation is repeated on the other side. Then the sticks are turned on edge, banjo-bridge fashion, other sticks inserted nearer the ends of the board and turned up, and wider sticks used until the wires are as tight as safe. Try until you find the limit. In a few moments the sticks can be turned down and removed, and the wires will be found to lie nearly straight with little or no tendency to curl when cut. Soft string is wound twice around the board near each end, and also at each side of the center, where the pivot is, and tied tightly. The wires are cut by slipping the scissors in the recess at one end, as shown in illustration No. 4.

The L-shaped hooks remaining on the wire ends are then all cut off, leaving the wires as straight as needles for threading through frames. The slight amount of wire wasted is too small to consider, particularly when we view the results. I use rubber bands to hold the wire instead of soft string, but either will do.

The stretching-board is made of two half-inch boards, four inches wide, nailed to blocks as shown. The ends are covered with tin to prevent the wires cutting in. Headless nails or conical-headed tacks (see No. 3) are driven in the ends to prevent the wire slipping off while reeling. The board is 43 inches long, and the wires, after cutting and trimming, are 87 inches long—just long enough for easy work. Don't try to save on wire by using shorter pieces. You will lose in time and temper, and get poor results. With the wires straight, and the "spring" and much of the stretch out of them, we are ready to begin threading them into the frames. To do this rapidly, and to make the wires so tight they will "sing," we must have a good jig to hold the frames firmly. Mine is shown in illustration No. 5. It consists of a piece of heavy plank, old, straight, and free from tendency to warp, supported on legs, and having at its lower edge a shelf for nails, tacks, and tools. The various cleats and angle irons are so located as to furnish support at the right places, and not interfere with threading the wire, and yet hold the frame firmly without any springs or other contrivances. The various parts have been outlined with white to show them more plainly. The board is stained dark for the sake of the eyes, and, incidentally, wires are seen more easily.

The frame is put into the jig with the bottom-bar up, and the unnailed end to the left. The reel of wire is conveniently at hand with the looped end of the wires toward me. A loop is seized, and the wire pulled out.

When the ends are almost free the other hand grasps the wire close to the ends, and both ends are started through the middle pair of holes; for as long as one's head is tipped to one side, it is as easy to start two wires as one.

The ends are then seized with the other hand, *both* wires pulled across, and the process repeated at the other end of the frame.

As the wires are drawn snug, the upper one (that nearest the bottom-bar) is dropped while the other is laced back through the holes next to the top-bar, and then the other wire is treated likewise. As the end of the latter is drawn through the last hole, it is made fast about the two headless nails on the lever at the right by wrapping, as one wraps a rope about a cleat. Then a 2½-oz. tack is put at the top and bottom opposite the ends of the angle irons, as indicated, and these tacks driven in, because the wires are to be wound firmly about them. The lower end is wound completely about the nearest tack twice—that is, three sweeps of the hands; more is too much; less is not enough; the wire cut, and the tack driven home. I cut the wire before driving the tack, as I do not appreciate sharp points of wire which are left if cut after driving. I use and prefer cutting-pliers rather than scissors, as they are handier, and one is less likely to cut the wire at some other place at the same time.

The wire is now ready for tightening. The lever at the right (which is to save fingers rather than for power) is siezed by the right hand and pulled firmly to the right, while the left hand "walks up" the wires in the frame much as shown in the dealers' instructions for tightening wires. The first wire is pressed down, then the second, then the third, while the lever takes care of the fourth and all of the slack. The process is repeated three or four times.

The left-hand end-bar is thereby pulled in at the free end one-half inch, until it rests against the cam, as shown in No. 5. The wire is pulled from the nails on the tightening lever, drawn snug, wound about the upper tack, cut, and the tack driven home. The handle actuating the cam is then moved until the end-bar is out to its place. The cam handle (a springy piece of iron) is caught behind a nail placed for the purpose, and the free end of the bottom-bar is nailed.

All the wires sing when struck, like the strings on a banjo. There is no stretch nor give to them under any load they will get while combs are building, and the frame is absolutely square. They are ready to hold foundation properly.

It has been asserted that the lowest wire will be the tightest; but the difference between it and the others is not appreciable. The description is necessarily long, but the actual work is rapid. Rarely is a wire broken; but when one is, it is cut out and a new one put in. Never try to mend or piece it.

As to time used in the operation, I nail and staple 35 to 45 frames an hour. Winding and stretching the wire for fifty frames takes about five minutes. Wiring from the time a frame is picked up until it is laid on the finished stack is just 1½ minutes, and I regularly do 30 an hour, including stretching wire, moving finished work, and getting a fresh stack at hand.

I have seen no process to equal it in results, and very few to approach it in ease and speed. I am now nearly half through the third thousand fixed by these methods.

Putting foundation into such frames is a swift and easy matter, and will be explained and illustrated in another issue.

Providence, R. I.

ARE BEES ATTRACTED BY THE COLOR OF BLOSSOMS?

BY JAMES A. GREEN

The article on the color sense of the bee, page 106, is extremely interesting to me. The experiments narrated therein seem to prove fully that bees have at least some perception of color. But I cannot agree with the author when he concludes with the statement, "The old theory that the colors of flowers are designed to attract the insects . . . . has been successfully vindicated." Granting that it has been proven that bees can distinguish some colors, it does not by any means follow that it has been proven that the colors of flowers are designed to attract bees or other insects, or, in fact, that they have any attraction for them. I have never been able to reconcile myself to this theory, although it is one that is almost universally accepted by botanists.

It is but a forlorn hope to attack a citadel so strongly garrisoned by the wise ones of the world, but I will at least throw my little pebble. I shall not attempt to make an exhaustive review of the subject, but will point out one or two particulars in which it seems to me the theory does not agree with well-known facts. One of these is that many of the most beautifully colored and elaborately marked blossoms seem to have no attraction for bees, which visit them but little or not at all. The counterpart of this is that the blossoms most visited by bees are usually very inconspicuous in their colorings and markings.

The popular idea on the subject of honey-gathering is well expressed by the poet who wrote of the bee that "gathers honey all the day from every opening flower." Only the practical apiarist knows how comparatively few are the varieties of blossoms that are of much value to the bee. While bees work to a greater or less extent on a great number of flowers, those that are most attractive to them, and from which the world's supply of honey is gathered, do not make a very long list. What are the principal sources of honey supply? In the United States and Canada, white clover, sweet clover, linden, heartsease, buckwheat, sage, alfalfa. All of these, with the exception of alfalfa, are white, tinged with low tones of green, yellow, and red. White clover and heartsease are greenish white, more or less tinted with red. Sweet clover and buckwheat are greenish white. Linden, or basswood, is yellowish white.

The sages and mints in general, such as horesemint, pennyroyal, catnip, etc., are, as a rule, very modest in their coloring. So are willow, orange, raspberry, cotton, mangrove, catclaw, mesquite, locust, and other members of the acacia family. So too are the heather of Europe, the campanilla of Cuba, the logwood of the tropics, and many other plants of greater or less renown as honey-producers. I might go on and extend to great length the list of flowers that are favorites with the bees, yet are neither brilliant in hue nor conspicuous in their markings.

We are told that blue and violet flowers are preferred by the bees; yet among the blossoms that are good yielders of nectar, and so more attractive to bees, red tones are far more common than blue ones. Alfalfa, the blossoms of which range in color from light blue to deep violet, is the one conspicuous example that comes to my mind of a blue blossom that yields much nectar. But the bees do not visit the deeply colored ones any more than the light ones. Neither do they visit flowers of other tints. The blossoms of an apple-orchard vary from pure white to a deep pink; yet the bees show no preference, and the white blossoms of the Ben Davis are as well fertilized as the pink blossoms of the Winesap. But, according to the experiments of K. V. Frisch, bees cannot distinguish red, so that markings in this color or variations in its tints are not to be considered, even according to the color theory, as influencing the attractiveness of blossoms to bees; and all blossoms so colored or marked are to be considered as of neutral tint, so far as bees are concerned. So alsike clover, with its deeper tints of red, is no more attractive to bees than its white cousin, and the still deeper tones of red clover are not in the least attractive to bees until its flower tubes are filled nearly to the brim with nectar.

Can it be possible that the blossoms have been working in different directions in their development? Have some adopted bright colors and varied markings to attract insects while others have followed the more practical plan of rewarding their winged helpers with generous supplies of nectar instead of painted promises?

If so, the latter would seem to have the best of it, so far as the bees are concerned.

Grand Junction, Col.

[Our correspondent is usually very accurate, and it is seldom that we can pick a flaw in his logic or his facts; but on this proposition, at least, we believe his facts *support* rather than disprove the old theory that colors are designed to attract insects rather than otherwise.

Our correspondent makes the point that blossoms most visited by bees are *usually* very inconspicuous in color and markings. In this he is absolutely right. If that is true, does it not contradict the color theory? Not at all. Flowers have two ways—yes, and we might add a third—of attracting bees and insects so as to bring about cross-pollination. First and foremost is nectar; next, color; third, pollen. Sometimes the flowers employ all three methods. Where cross-pollination is very important we sometimes find the complete combination. The blossoms that yield the largest amount of nectar are very often inconspicuous in their colors and markings. The more abundant the nectar, the less color; but in a few cases, at least, nature seems to furnish a double attraction—color as well as nectar. Alfalfa, a few varieties of apple-trees, orange trees, red and crimson clover, are conspicuous examples of these. A list of blossoms that attract bees only by nectar might include such plants as the sages of California, basswood, raspberry, and the palmetto; but most nectar-yielding blossoms that yield honey in commercial quantities have a little color. Conspicuous among these are white and alsike clover; and right in this connection our correspondent refers to the white-colored blossoms of the Ben Davis and the pink blossoms of the Winesap apple-trees. He goes on to say that the one is as well pollinated as the other, notwithstanding one has more color than the other. But, mark you this fact: The Ben Davis is largely a self-pollinating tree, while the Winesap is almost wholly dependent on the agency of insects, particularly bees. It has been positively demonstrated that the Winesap can not be produced without bees. Does this not show that color is, after all, a factor? When a tree or plant is self-sterile to its own pollen it must put out, in addition to nectar to attract insects, color; hence we shall probably find self-sterile trees and plants furnishing nectar having more color than the self-pollinating kinds.

Flowers that are large and showy in color and markings usually have little or no nectar. What's the "show" for, then? To get the bees to visit and cross-pollinate them. A preponderance of color or nectar is for a purpose—to mingle the pollen. Again, plants that are wholly pollinated by the wind, and hence do not require the help of insects, are totally without color except the color of the plant. An example of this is the grasses.

Darwin has shown how nature constantly adapts itself to conditions. As he has pointed out, there seems to have been a constant progress in development all down the ages. In the line of this wonderful adaptation we find papilionaceous flowers, like peas, beans, and locusts, furnishing convenient doorsteps on which the bees may alight to get the nectar which the plants offer. We also find that most of the blossoms are adapted to the size, capacity, and tongue-reach of certain classes of insects, notably the bees.

In this connection, red clover with its long corolla tubes might seem to be an exception; but it is a very marked example of how nature furnishes color to attract bees. The corolla tubes are so deep that the common honey-bees and even the humble-bees cannot reach the bottom of them. When there comes a drouth, nature temporarily shortens these corolla tubes; but all the time, she puts out the brilliant color and the sweet aroma from the nectar, which the bee may or may not be able to get. We have seen the honey-bees time and again go over the red-clover blossoms trying to reach the nectar, and yet apparently fail. But some blossoms will furnish them nectar, and it is worth while for them to go over *all* the blossoms. We venture to say that, if the red clover had shorter corolla tubes, there would be less color, and hence less need of putting out a showy blossom to attract bees. We find corroboration of this in white and alsike clover. They have very short corolla tubes, and a great deal less showy color. White clover is the most important honey-plant, and it is much less conspicuous in color than the alsike.

If our correspondent will go into this matter very carefully he will find that nature has "method in her madness;" and the more we study this, the more we shall see the evidence of this "method."—ED.]

PREVENTION OF ABSCONDING DURING TREATMENT FOR FOUL BROOD; ALSO BLOCKING UP TO PREVENT SWARMING

BY WM. W. CASE

I notice what A. F. Wagner says on page 137, Feb. 15; also what the editor says on page 123, same issue, concerning bees absconding during treatment for foul brood.

I think you will both find that the cause of absconding is demoralization *and fear of starvation.* I don't think you will have any trouble in keeping treated colonies on full sheets of foundation (at least, I don't), if the treatment is done, as it always should be, just at night, on account of robbing, and hived on half a dozen sheets of foundation placed in one side of a ten-frame hive and a common baking-tin about 1½ inches deep, 3 to 4 wide, and a foot or more long, placed in the other side. Sprinkle cut straw half an inch deep in the bottom, and put every drop of a rich sugar syrup in the pan that the colony can take up. If very sultry next morning, shade the entrance and place ¾-inch blocks under each corner of the hive.

If field stores are not coming in plenti-

A part of the apiary of E. A. Duax, Chippewa Falls, Wisconsin, roof of bee-cellar in the background. The yard is sheltered on the west and north by a cedar hedge.

fully, in 48 hours very quietly (so as not to break the wax curtain) refill the pan with ¾ the former quantity of syrup, and I think you will say farewell to absconders. A division-board reaching within an inch of the bottom may be placed between the feed-pan and the foundation, but it is not necessary, and I do not always do so. Any kind of feeder may be used in place of the pan if it may be refilled without breaking the cluster.

Absconding swarms are hardly likely to carry the disease, as they usually abscond because they are *not* gorged with honey; but in diseased sections of the country all swarms not known to be absolutely healthy should be hived on full sheets of foundation, and left the four full days before being disturbed. (See five principles of treatment, June 15, 1913, page 406.) One frequent cause of absconding is that shaking out has been done so rapidly that the bees do not have time to fill their honey-sacs. Considerable has been said concerning blocking up hives to prevent swarming. Will it work? Yes, sometimes; and when the subject of swarming is fully understood, perhaps it possibly can be made to work at all times.

In 1913 our clover flow was light in central New Jersey, not many colonies filling more than one super, and many not that much, down to nothing. In clover, 70 odd colonies cast two prime swarms. The first week in August started with a good buckwheat flow, and the second week the same, accompanied by that warm, sticky, sultry condition so well known as setting bees swarming crazy, and things began to develop rapidly. On August 14 one swarm issued, and two on the 15th, with the whole apiary getting ready.

Fifty were immediately placed on inch blocks, and not another swarm issued. Several apiaries within a few miles swarmed one hundred per cent, or more. Mine swarmed less than seven. I have practiced blocking up more or less for several years, always to my advantage. I do not pretend to say that, with out present knowledge, this can always be accomplished, especially during June, with its bright, glad, flourishing days, when nearly every thing, including bees, takes life at its fullest, and when the only fly in the ointment of content is also the sultry, sticky June nights when no real live person can sleep with the windows down, and perhaps we may then begin to realize what full ventilation may mean to an overcrowded colony of bees at the height of the normal season of increase, so strongly developed in all nature, and confined heretofore in an airtight box, and tortured all day by a nearly tropical sun.

I believe that, with just a little more knowledge on the subject, comb-honey production will soon be less handicapped by swarming than is even now the case with apiaries run solely for extracted honey, and often wonder if there would be room on this great earth for just one more new and perfect hive.

Frenchtown, N. J.

A WELL-LOCATED APIARY, BEE CELLAR, AND HONEY-HOUSE

BY E. A. DUAX

[The following article should have appeared in our May 1st issue, but was left out by an oversight. The first picture mentioned is that shown on the cover, May 1.—Ed.]

We have a two-story honey-house, 14 x 28 feet, located very near our apiary. The rear door leading to the beeyard is at my left in the picture (cover picture May 1). From the beeyard it is down hill, which makes it easy to run in heavy supers filled with honey to be extracted. The second story is used for a store room, where five tons of honey were stored last fall. It has a rubberoid covered roof, which makes it an ideal place to store honey. We raise the honey to the upper story with a homemade elevator run by a gasoline-engine which also runs the extractor. We can elevate between 700 and 800 lbs. to a load. Beeyard is sheltered on the north by a cedar hedge.

The building at the extreme left, of which you can just see the roof, is the one shown at the left in Fig. 1. The roof shown in the rear is the bee-cellar. It is built on a side hill facing the south. It is very handy for putting bees in and taking them out, for there are only two steps to come out or go in. Two men with a stretcher can handle 75 colonies in about two hours easily.

This cellar is not used for any thing but wintering the bees. The cellar ceiling has ten-inch joists lined on the under side with paper and matched lumber, then about 6 inches of sawdust; or four-inch dead-air-space floor of matched lumber, and about 7 inches of sawdust on top of it, which makes it frost-proof. It has a 10 x 10-inch ventilator reaching within ten inches of the bottom of the cellar. I have also an intake ventilator 60 ft. long, leading to my bee-cellar, 6 ft. deep inground, which works finely, keeping temperature about 42 degrees Fahr.

E. A. Duax and family in front of their home which the bees helped to build.

Chippewa Falls, Wis.

BANKING AND BEEKEEPING

BY J. J. MOYERS

I am sending two pictures together with a newspaper clipping which appeared in the Nashville *Tennessean and American* a few months ago. I thought that perhaps you would like to use these in the news columns of Gleanings.

My occupation is banking, which duties I perform above all. In place of being an athletic fiend I am a bee fiend, from which I obtain profit as well as pleasure. I have 85 colonies, all in ten-frame hives, two and three story, also two apiaries which are

J. J. Moyer's Observer observing bees in an observatory hive. Mr. Moyer and his family are shown in the cover picture for this issue.

located within the city limts, and then come my two observation hives, one of which is kept the year round in my dining-room window, and which is my daily study. In these two hives I have the golden Italians.

I am trying to get the people to take more interest in bees in this section as there is not a better location in the State.

Fayetteville, Tenn.

[It is doubtful whether there is a class of professional or business men not represented by some enthusiastic beekeeper. Our correspondent is certainly an enthusiast, and we feel sure that he finds his work in the bank less tiresome because of his hobby.

Our cover picture for this issue gives a very good picture of Mr. Moyer, his family, and his bees.—Ed.]

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NOTES FROM GERMANY

BY J. A. HEBERLE, B. S.

The article by H. H. Root in the November 15th issue, page 799, on putting foundation in brood-frames, is very interesting. The illustrations are so clear that a beekeeper who has had only a few lessons may easily understand it.

I use no grooves with wedges to hold the foundation. I solder it on the top-bar with melted wax. If the wax is warm enough it will hold as much weight as the foundation will stand, but will not stick well if it is too cool. It should be just warm enough so that it will not melt the foundation. A board is used about ¼ inch smaller than the inside of the frame, and thick enough to hold the foundation in the middle of the top-bar. On the two long sides of the board is nailed a thin lath a little longer than the frame, and extending about one-half inch over the sides. The foundation is laid on the board and the wired frame upon it, care being taken that the sheet touch the top-bar the entire length. Board and frame are firmly held in the left hand with the top-bar down, and so inclined that the melted wax poured in the upper corner will run down rapidly. It is better not to pour too much wax on one place, as there is danger of the foundation melting at that point. Keep the hot wax constantly pouring out in a thin stream. We have a handy alcohol-lamp with a spoon that can be removed, which is used to melt and pour the wax on the top-bar. When the spoon is removed, the wire-imbedder may be heated on the flame.

After one side of the foundation is fastened, the board is removed and the frame held in the left hand in such a position that, with the right hand, melted wax can be poured on as before. The lamp is allowed to burn, and the flame is regulated to suit. Lamp and spoon are used as one piece. The spoon is removed when wiring foundation, and the imbedder put in its place. The one I use has V-shaped grooves in the teeth so the wheel can't slip so readily. Between the handle and the center of the wheel there is an extra-heavy metal part that helps to keep the teeth at the desired temperature.

UNCAPPING-FORKS.

I do not use an uncapping-knife, but a fork constructed for that purpose. I can uncap as rapidly with it, because I am not used to the knife. No warm water is needed.

A NICE CHRISTMAS GIFT.

Queen Victoria, of Sweden, gave the Crown Prince (heir apparent) a Christmas present of a quadruple hive (four hives built in one), with roof and base, together with the frames and tools necessary. It was made in Baden. She sent a Swedish beekeeper to Baden last summer to learn how beekeeping is carried on, and to see what is being done there to foster and to advance the interests of beekeepers. Her Majesty, no doubt, has risen in the estimation of all beekeepers.—*Die Biene u. i. Zucht.*

WATER FOR BEES.

German bee-journals mention the necessity of providing water for bees where nature does not supply it near the apiary. A dish with something in it, such as small strips of wood, excelsior, straw, etc., to prevent the bees from drowning, will suffice. A couple of barrels with arrangement for continual drip (a spigot, cock, or siphon) would be convenient for large apiaries such you have in America. The barrel should stand on a foundation 1½ or 2 feet high. The drip should fall on a slanting board with rills, or be covered with gunny sack, etc. When bees have young brood they need much water. A large force of bees is needed in the apiary to carry water. In early spring the weather often changes suddenly, and many water-carriers cannot return if they have to go a considerable distance. We often have very bad weather for several days in succession. It is not only the loss when bees are more valuable than at any other time, but the extra work saved to the bees would pay for the trouble of providing water in one or more places in the apiary. Warm water at about 70 degrees to 80 degrees Fahrenheit is recommended. A beekeeper can readily make an arrangement for warming it. A kerosene-lamp will supply the heat very cheaply.

OBSERVATION STATIONS.

In many of the provinces observation stations have been established. A hive on scales is weighed once or twice daily during a part of the year. The number of days and hours during which the bees fly, prevailing winds, the amount of rainfall, etc., are noted. These observations are sent monthly to the chief of observers, who tabulates the results and publishes them with comments. Bavaria has 31 such volunteer observers in the various parts of the kingdom. Switzerland has 39 such stations. The chief, Mr. Juestrich, in his annual report in the *Schw. Bztg.*, states that the 39 stations have 52 hives on scales, 44 of these having their frames in an upright position, and eight in the same way that you have yours. The top-bar is longer than the end. The average monthly consumption for colonies shown was—

November, 710 gr., or 1 6-10 lbs.
December, 688 gr., or 1½ lbs.
January, 794 gr., or 1¾ lbs.

The average consumption for ten years was—

November, 741 gr.
December, 888 gr.
January, 956 gr.

In Bavaria the average given for 1911 was—

November, 595 gr.
December, 446 gr.
In 1913,
November, 371 gr.

December, 621 gr.

In April the brood was measured in 14 colonies, showing an average of 34 dm., or about 544 square inches per colony.

SMOKERS.

We have a smoker with a clock and a fan that will blow smoke for about ten minutes. It can be made to smoke just a little or stop entirely, depending on the tension of the brake, which can be readily adjusted as wanted. I expect to use one this summer. I have been using a smoke-blower which is held in the mouth, leaving the hands free.

We have a water-pipe also. It is an atomizer, neat in appearance, and held in the mouth. By blowing instead of squeezing a rubber bulb, it makes a fine spray of water. I have not used one, but have read the praises of others. Whether it is because it is cheaply operated only, or because it subdues the bees, I can not say.

A regular brier tobacco-pipe made especially for the use of beekeepers is extensively used. For one that is a tobacco-user it is quite convenient, and will do very well for an hour or two.

Markt Oberdorf, Bavaria, Germany.

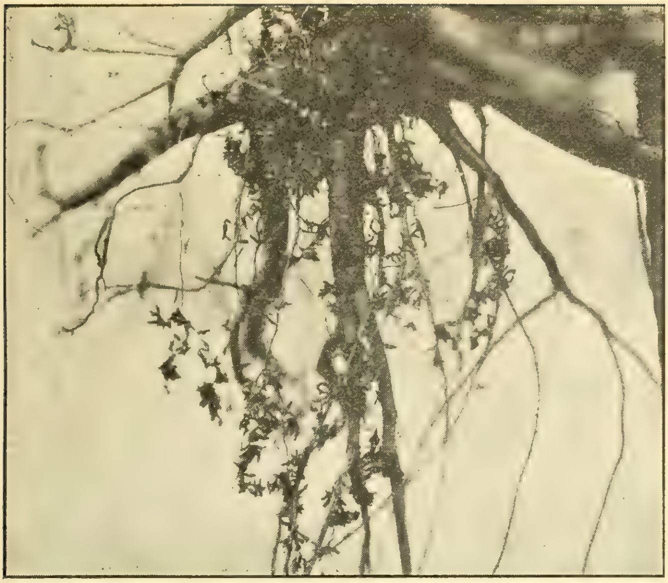
SOME DIFFICULTY IN OVERCOMING PREJUDICE IN REGARD TO SWEET CLOVER

BY WILLIAM BEUCUS

Several years ago I brought from Madison, where sweet clover grows along the roadsides, a quantity of sweet-clover seed. Part of the seed was planted in some soil which I had shipped for inoculation, and the remainder of the seed was scattered about the yard. The plants which grew in the box of soil I transplanted when they were a few inches tall, and these in every case flourished until it was necessary to lengthen my reach with a stick, as shown in the photograph, in order to touch the tips.

In the fall of 1909 a new road was opened to the south of our property; and when it was finished, I scattered upon it some sweet-clover seed. The following year, 1910, was the driest on record for this part of the country. The hay crop was a complete failure, and many farmers sold almost all of their cattle to avoid the expense of keeping them over winter; and yet during all of this time, when timothy and alsike and red clover were drying up, the sweet clover I had planted along the road

An exceptionally rank growth of sweet clover on Wm. Beucus' farm, Cadott, Wisconsin.



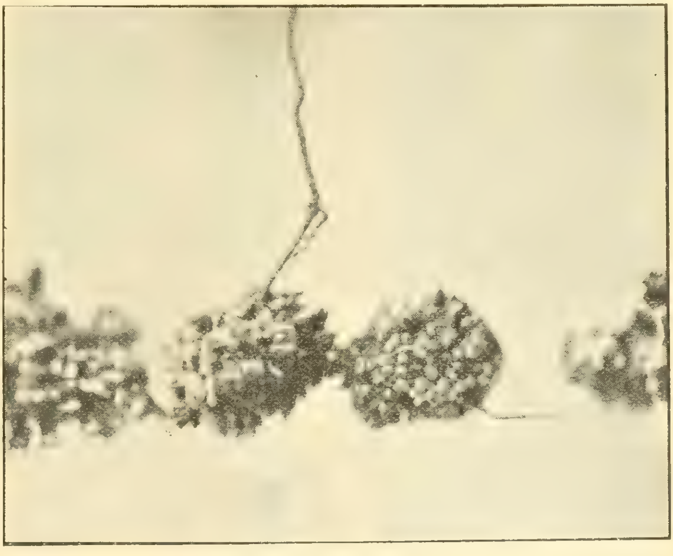
Roots of sweet clover. Note the "fat" fleshy roots, also the nodules in clusters.

was growing vigorously. In September it had reached a height of four feet, and the stems were as fine as alfalfa, as, indeed, they always are the first year. One naturally would have thought that the farmers would have noticed the contrast, and have given the sweet clover a trial; and yet, even though I called their attention to the matter at the time, and also later, no one was wise enough to experiment with this great legume.

I have called attention to the matter many times since, and have offered seed free to all who would give it a trial. So far not one farmer has shown an inclination to investigate the value of sweet clover for hay, although three have given it a test for pigs, and recommend it highly.

During all this time I had put in the hands of the farmers articles from farm papers, showing up the value of sweet clover; copies of The A. I. Root Co.'s booklet, "The Truth about Sweet Clover," were distributed, returned to me, and redistributed, but without results. The farmers thought, and still think, that that booklet is issued by a firm interested in honey, and, knowing that the sweet clover is a good honey-plant, have concluded that the Root Co. has an ax to grind.

A year or so ago I secured from the United States Department of Agriculture a copy of the bulletin on sweet clover, and let several farmers read it. One farmer who had read "The Truth about Sweet Clover," without being impressed, asked me for seed as soon as he had read the bulletin above mentioned. He has now tried it for pigs, and recommends it to others. But it is still impossible to find any one who will raise even a small patch of hay. Some say the stems are too coarse, others that the hay can not be properly cured, although they have never tried it. One farmer is inclined to look favorably upon sweet clover for the silo, but on this point I could give no information. Above all, there is still a great



A close view of nitrogen-bearing nodules in clusters on roots of sweet clover.

deal of fear of sweet clover as a noxious weed comparable with quack grass and Canada thistle. In Northrup King & Co.'s catalog for 1914, sweet clover is called "alfalfa's twin sister;" but at the very ending of the praise and recommendation of this plant occur these two significant sentences: "We suggest that you do not let it go to seed. It can then be controlled at all times." Thus if any good were done by what had preceded, at the very close it was all undone. If sweet clover possesses so many good qualities, why be afraid to let it go to seed?

Cadott, Wis.

PAINTED HIVES NOT BAD FOR GEORGIA BEES

BY L. W. CROVATT

At the risk of being "harpooned" by Dr. C. C. Miller, and being pronounced a common nuisance by the editor, I want to take another shot at this question of painted or unpainted hives.

Dr. Miller, in Stray Straws, p. 85, Feb. 1, admits that advocates of unpainted hives "agree that paint *is* good for the hive, but they think it isn't good for the bees."

Well, now, doctor, let us see. Admitting that I know nothing of climate and general conditions of your locality, I am discussing the question from a southeastern viewpoint. As it happened, I last year had the opportunity to make a study of this same question—the painted and the unpainted hive—in my own yard, and I can say with emphasis that there wasn't the least apparent difference in the relative strength, conduct, or storing ability of the bees in the painted hives and those which were unpainted.

This, then, would seemingly be reassuring to the Southern beekeeper. The insects in the unpainted hive were in no way different from the bees that were housed in hives resplendent with white paint. They most assuredly were not enjoying any advantages derived from an unpainted hive; were no more energetic; did not store any more surplus than the "fellows in the painted houses," and, so far as wintering is concerned, seem to be no better and no worse off than the other colonies in my yard, and we had a severe snowstorm here on Feb. 25—the first since 1899. So far as I could see, the health of the bees in both the painted and unpainted hives was about the same, so the theory advanced is incorrect—*here.*

But, doctor (and I submit this as a *big* but), you should have seen the condition of those unpainted hives. Here, you know, we have a damp climate, taking it as a general thing. The sun shines hot, and wood exposed soon begins to decay. The unpainted hive-bodies had split; "shakes," as the lumbermen call the odd-appearing breaks from exposure, were so thick all over the outer surface that there wasn't a space of half an inch free and unblemished; and the water, getting into these scarred places, had already begun the work of decay on the hives. They had turned black, and were a sight to see. They had been in use for *one season.* Painted hives to the number of 150 were in the same yard, and showed no great wear and tear after *several years' exposure.*

Now, considering the advance in lumber, which, of course, causes a corresponding increase in hive quotations, don't you think it would be prudent to paint, when by painting we may lengthen the life of the hive? Would it not decrease, or at least keep down, operating costs for the apiarist? Would it not be, let us say, "good business judgment" to paint, if by painting we may cut down our supply costs? I confess that I may, perhaps, be mercenary to a certain degree; but this thing of allowing the weather to rot and destroy the hives is something which does not appeal to me, at least; and it is an established fact that practically 99 per cent of the beekeepers in this region *insist upon painting,* and I assure you that they do have rousing colonies.

As a strenuous advocate of paint I also want to go on record as being a champion of the metal roof-cover. This is *the* cover for this region, for the excelsior, gable, and other devices heretofore given to the public by the A. I. Root Co. have been unable to withstand the climate and checking, soon replaced by gaping breaks; and, incidentally, rotting brood-frame top-bars may all now be avoided by using the metal roof-cover. Assuredly I paint the cover too—from the under side of the telescope to the last fraction of an inch of the metal cover.

The question of paint may be another of those matters covered by the expression "territory or locality," but you would have to talk with a mighty convincing and loud voice to make any one in this section quit painting hives. I honestly believe that paint does not interfere with the inmates of the hive "in this locality," nor is it prudent to be sparing with the paint-pot and brush.

Savannah, Ga.

A field of white aster in Kentucky.

THE WHITE ASTER IN KENTUCKY

BY JAMES S. JOHNSON

In the mountains of Kentucky we have two distinct honey-flows. The white flow begins with fruit-bloom, and lasts until the middle of July and closes with the sourwood flow. We may then have a dearth, owing to weather conditions. If it is rainy weather bees store no surplus until about September 10, when asters come in bloom, lasting until the last of October.

It should be the object of beekeepers to see that all colonies are kept populous by stimulative feeding, or by leaving enough white honey on the hives to keep up brood-rearing. Last year I looked after my hives to see that all queens were kept busy laying, and tried to have all brood-frames full of sealed or hatching brood by September 1. Every thing worked just as I planned. Every colony was rousing strong in bees and lots of brood and eggs.

The flow began five days later than in the four preceding years, owing to the dry season, which made the plants a few days late. Bees do not store much honey from this plant until the fields get as white as snow. My hive on scales showed the heaviest gain October 2, 3, 4, 5. The exact gain was 25 lbs. for the four days. The whole gain per hive from Sept. 15 until the last of October was 67 lbs., taking the hive on scales for a unit. The 48 colonies in my yard stored 3000 lbs. of the golden goods. I harvested about 1500 lbs. of surplus.

Some brood-frames which I weighed averaged 5 lbs. each, making 40 lbs. to the brood-chamber of 8 frames. This shows that all colonies stored about the same amount.

There were about 95 acres of white aster within reach of my bees.

Picture No. 1 was taken in my apple-orchard, showing the plants just as the flowers began to open September 17. This land was cultivated in corn in 1911. The majority of the plants came up in the fall of 1912. Last year it bloomed some, and this year it gave a full crop of bloom. This plant follows cultivation. To get a full crop a piece of land should lie at least two years after being plowed. It blooms the heaviest the second year after cultivation.

I tried saving some seed. The plants were

James S. Johnson in his apiary, Langnau, Ky.

cut just as the seed ripened, before it let loose from the plant. The hay was then hauled to the barn to be thrashed out later. An average plant has about 1000 seed-receptacles, with about 40 seeds each, making 40,000 seeds to the average plant. The seeds are attached to a downy substance which carries them in the wind to adjacent lands where they lie in the ground until the following fall when they come up and bloom the next year. Last June, when transplanting some strawberry-plants I found the young aster plants just large enough to tell what they were. They will grow some all through winter, and make good for the next year. This plant grows in out-of-the-way places also, and around fence-corners, stones, and trees, or any place where a plant can get hold. It may be seen in the bottom lands and up mountain sides as far as cultivation extends.

Picture No. 2 is a view of part of my apiary, taken Oct. 17, showing a brood-frame as the honey was being sealed. This frame came from a nucleus formed with three frames August 1. It stored 40 lbs. of the yellow goods for winter. It has a fine young queen, and her bees are hustlers. This nucleus was made of two frames of brood and one of honey. The frame of honey was placed third from the hive wall. Five frames of full sheets of foundation and about half a gallon of bees and a ripe cell were added. Back of me and to my right is the hive on scales.

Langnau, Ky.

QUEENS, LIKE HENS, SHOULD NOT BE KEPT OVER TWO YEARS

BY A. C. GILBERT

The great loss, especially to beekeepers who keep less than 75 colonies of bees in one apiary by tolerating queens that are three years old and over, I think is greatly underestimated by some. It is no great task to save enough choice queens to requeen half of the colonies in an apiary each year, and at the present time there are plenty of queen-breeders who can be depended on to furnish superior queens. When the time comes to super the colonies, the rousing big ones will be found to be headed by a young queen every time. Since practicing introducing young queens in half of the colonies each season, we have very few but are ready for the supers when clover begins to yield. When we let them all have their own way a good many colonies amount to next to nothing for surplus, which is certainly a great loss. Suppose the apiarist had purchased queens at one dollar each for such colonies the year previous, the differences in yield might have been 100 lbs. per colony. The above has been verified in our apiary.

The first Italian queen that we introduced in our apiary of black bees was purchased of A. I. Root, I think, 32 years ago; and how anxiously I watched for the first young Italian bees to fly! What a contrast they presented to the blacks! The bees from that queen filled a super of choice honey from the second crop of clovers, besides a great plenty to winter on. I think queens might be compared to hens as to laying, as a hen after the first year lays fewer eggs each succeeding year. It is just as unprofitable to keep a hen over two years as a queen. Then, again, the condition of the brood-chamber of a prolific queen is such as to keep the queen busy occupying the cells, as the hundreds of young bees are vacating them, which has a tendency to prevent congestion in the brood-chamber, and causing more work in the supers, and more capacity, all of which lessens swarming.

Honeoye Falls, N. Y.

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THE CONTROL OF SWARMING AT OUT-APIARIES RUN FOR EXTRACTED HONEY

BY R. F. HOLTERMANN

The article on the above subject by J. L. Byer, page 337, May 1, which has very many excellent points, impels me to say something more upon the same subject. It does not require much of a confession on Mr. Byer's part to admit that he cannot prevent swarming "with all kinds of hives." The hive, its size and construction, has a great deal to do with the swarming impulse. With an eight-frame Langstroth hive it is practically impossible to control swarming unless with much extra manipulation; in fact, the hive has to become a divisible-brood-chamber hive, part of the brood in one story and a part in another, with the consequent necessity of looking up the queen-cells in the upper story, for the risk of hatching queen-cells is too great to allow a man of common sense to take for granted there are none there. Others things being equal, the smaller the hive the greater the danger of swarming.

THE ENTRANCE.

Then the entrance to the hive may influence swarming. In going through the country I have often noticed that the entrances are about 4 inches wide and the usual depth, with the bees clustered there idle. Why? Either because the day is hot, and there is not sufficient ventilation to enable the bees to remain inside, or because there is not sufficient storage room. Such entrances were common thirty years ago, but they are neither common nor *proper* to-day.

All through the surplus-honey flow my hives have an entrance $1\frac{1}{8}$ inches deep, the full width of the hive. With a hive of this kind, and with ample super room, if Mr. Byer can teach me how "one soon gets to know from external conditions, by the progress being made in supers, and in various other ways, how to diagnose pretty well without tearing into the center of the brood-nest at every visit," I will confess I cannot. I am running about 800 colonies this season; and although I am supposed to be a man who grasps details in business, and is the bane of the employee who does not, yet I confess that, with all those bees, except in isolated cases, individuality in colonies is lost; and from week to week to compare progress in storing is almost entirely lost, unless after the first cells have been broken. I doubt its practicability in any case unless at the last of the probable flow. I give enough room for storage to cover any possibility in the direction of a flow, yet the quantity of empty space in a hive varies too much to make the comparison of remaining space a safe guide.

A well-managed colony with proper entrance and proper surplus room does not show by "lying out" that it is going to swarm, and this is particularly and most emphatically true of Carniolan bees.

Every week we look through every colony for queen-cells; and again and again, in a twelve-frame brood-chamber, after looking through ten out of twelve combs, and taking it for granted that there are no cells in the remainder, we have been mistaken; so my instruction to students is, "examine every comb." And after all that is done we have dozens of times found a queen-cell in the upper story at the bottom of a comb of solid honey—the cell just above the queen-excluder, clearly indicating that the bees carried an egg up there to occupy a cell. No, in all my journeyings and reading I have found no one to tell me to my satisfaction any way to tell if a colony has the swarming impulse unless the brood-combs are examined carefully. I can tell some colonies, but they are not kept and looked after as mine are.

GIVING ROOM IN TIME.

Then, as Mr. Byer says, the bees must be given surplus room in time; and it must be largely, at least, drawn comb. The critical period is when the colony has a nearly full brood-chamber, and before it enters (or, let me say, *accepts*) the super as a part of the hive; and let me say to the inexperienced, a comb-cell is full, so far as room is concerned, as soon as the queen deposits an egg in it.

SHADE.

Many good beekeepers are opposed to shade for the hive. Let me say unmistakably that, in my estimation, *and in the estimation of the bees,* the statement that the sun shining on a hive in summer brings the bees out earlier in the morning is absurd. It may have that effect early in the season when the leaves are not on the trees; but in summer, after warm nights, this is an absurdity; in fact, I have seen bees at work long before sunrise, and I have heard them at work from my bedroom window when scarcely daylight. But shade after the leaves come out on the apple-trees distinctly tends to non-swarming. I know one must be careful about accepting apparent results from isolated cases; but after over thirty years of extensive experience with bees I *know* shade tends to decrease the swarming impulse.

CONCLUSION.

Like Mr. Byer, I know of no absolute way of preventing swarming in the localities in which I have kept bees. There have been seasons where it would not have paid me to go through colonies every week to look for the swarming impulse; but I have to go through them once a week just the same, for I did not know this until afterward. To lose a swarm early in a good honey-flow means the loss of the season's profits from that colony. Then, too, in my estimation a colony requires looking through about once a week to see that matters are progressing right in every way. As long as we do this, foul brood is not likely to get a very serious start in an apiary. A colony will not die out from queenlessness, and other evils can be prevented, provided the examiner is awake and his mind is on what he is doing. In this phase of the work a good rule is not merely to *think* every thing is right, but to *know it is so.*

Brantford, Canada.

AN EXPERIENCE IN WORKING BEES ON SHARES

BY LE ROY LINCOLN.

Early last spring, wishing to make up for a heavy winter loss, I advertised that I would work bees on shares. A beekeeper four miles distant requested me to call. The day was quite cold, so I didn't open any of the hives. In answer to my query if the bees were in movable-frame hives he said that all of them were but five. That satisfied me, so we made an agreement to the effect that, when those five swarmed, and if any of the others should happen to cast a swarm, he was to hive them at the rate of 50 cts. per swarm, and, if possible to notify me in time, he was to do so.

On a nice warm day early in April I thought I would look the bees over to see how they were fixed for stores, etc. I took the cover off the first hive, and, whew! movable frames? Well, they were movable all right, but one had to take the whole hive to move them. The second, third, fourth, and so on all through the apiary were just the same—combs built just as bees delight in building them — crosswise, lengthwise, and everywise.

I called Mr. B., and he explained that the frames were movable, because he put them in one by one. No, he didn't use foundation. What was the use when the bees could build comb without? His father always kept bees, and never used a bit of foundation. I saw that I had gotten a "pig in a poke," and went home to think it over. On the way I had visions of streams of fifty-cent pieces leaving my pockets for those of Mr. B.

That evening I hit on a plan which I thought would hold back some of those coins and still give me a crop of honey. Early the next morning I again visited the yard and picked out the two strongest colonies and placed them side by side. The two next strongest were placed side by side about six feet from the first two, and so on throughout the apiary. Of course, this shifting caused some confusion among the bees; but on again visiting them a week later I could see no decrease in the relative strength of the groups.

As soon as possible I raised a bunch of queens in the home yard; and when Mr. B.'s two strongest colonies showed signs of swarming I removed them to the other end of the apiary. On the old stand I placed a ten-frame hive with one frame of brood and nine of foundation, and a caged queen. On top I put two full-depth extracting-supers. In a very short time that hive was as populous as could be desired. The queen was liberated and had three frames of brood when I next looked, five days later. It was a sight for sore eyes to see the way those bees were storing honey in the supers. There were combs in the supers and foundation below. The queen would fill a frame with eggs as soon as the foundation was drawn out, so the bees *had* to put the honey in the supers. I followed this plan with the rest, and by the middle of June I had 23 good populous swarms working in the supers. By this time the first of the hives thus treated were again so populous that I repeated the operation. As I could make only 60 per cent increase according to the contract, this could be done with only five more. The rest I allowed to swarm, and put them back. Mr. B. did this, and got only eight of my half-dollars. I received a nice crop of honey and had 14 good strong colonies at the end of the season as my share.

When at work among the bees Mr. B. was constantly following me about. He did not try to conceal his surprise at my "ignorance" of certain "well-established facts." For instance, when I started to clip the queen of one of the newly formed colonies Mr. B. almost had a fit. He said clipping meant the ruin of the colony because the queen would not be permitted to take her "daily cleansing flight."

At another time, shortly after I had returned home from a visit to the yard, he called me up on the telephone and wanted to know if I could come down the next morning, as three swarms were going to issue. I asked which ones, and he replied Nos. 12, 15, and 22. Looking in my record-book I found they were all new colonies. In fact, No. 22 had but five frames of brood. I told him there must be some mistake; but he said he was positive, because he had seen drones flying in front of those hives for the first time, and surely I "knew that within 48 hours from the time the first drone is seen flying from a hive, that hive will swarm." I confessed my "ignorance," and said I would take a chance on their not swarming, and Mr. B., disgusted, hung up the receiver. Is it necessary to state that Mr. B. never saw a copy of GLEANINGS nor any other bee-paper in his life? I am sure the beekeeping brethren will appreciate this very simple method of determining (?) when a colony is going to swarm.

Worcester, N. Y.

[Your plan is all right, except that in some cases it may result in the killing of queens by reason of confusion resulting from the transposing of the colonies. But this will rarely occur when the bees are busy in the fields or are preparing to swarm. Ordinarily we should say the plan would be workable.—ED.]

SHOOTING DOWN SWARMS

BY ALFRED CARLING

Some time ago the editor said that the man who could show how to take a swarm out of a high tree without climbing it deserved a gold medal, or words to that effect. Now, as I have not seen any one claiming the medal I will try to get it.

My yard is located in a narrow canyon with tall live-oaks on the hillsides. Some swarms will fly high, and cluster away out on the swaying branches where climbing would be out of the question. I spread a large canvas on the ground directly under the swarm, and put a bucket of water with a big brush handy. I then take my 44 Winchester and shoot off the limb that supports the cluster. When it comes tumbling down on the canvas I take the brush and give the bees a good sprinkling with water. Then with a dustpan I shovel part of them into the hive, and the rest will scamper in like a flock of wet sheep. When water is not handy I roll up the canvas and dump them into the hive and put the canvas over like a tent.

On days when the mercury is trying to crawl out at the top of the tube the bees are likely to scatter in the air as the limb breaks off; but they will nearly always settle a little lower down, and then I repeat the operation till they are low enough to be reached by a 30-foot pole. Again, on hot and still days I have had to wait till the sun set to prevent the bees from scattering. It gets cool here as soon as the sun sinks behind the mountains.

After the swarm has been shot down once, there seems to be no danger of absconding. When the foliage is so thick that the branch to be cut off can not be seen I take the shotgun, loaded with coarse shot, and clear out all the rubbish in the way. A shotgun loaded with coarse shot will, in many cases, bring down the cluster without the use of the rifle. After the brush is cleared out so I can see the limb the cluster hangs on, I send a bullet in the center of the limb, then shoot on each side of the first bullet so the bullets will strike about two inches apart. This will cut very large limbs.

Once in a while a swarm will cluster in a crotch or on the trunk of a tall tree. I then shoot coarse shot a few inches above the cluster. Fragments of bark and the powder smoke will invariably make them move, and I keep on shooting above them until they are on a convenient place for either hiving or cutting the limb with the rifle. I remember one swarm that had settled very high on a live-oak tree. When I commenced to clear off the branches with goose-shot charges the cluster tumbled down to the next limb repeatedly till the whole tree looked like a toboggan slide. If the limb is thick it will take three or four bullets to cut it off; but generally one or two are enough, as the weight of the cluster helps very much in breaking the limb.

My bees are wild ones caught in the hills They seem to be a mixture of all races. Only a few are black. They are very savage at times. I have had a handful of them meet me forty rods from the yard and sting furiously. When hiving a swarm of this disposition during a hot day I dump the whole swarm that has been shot down into a big bucket partly filled with water; shake them up a little; dump bees and water in front of the hive on an extra bottom-board, and it seems to take both the fight and the wanderlust out of them.

Paso Robles, Cal.

[The only objection to your plan is that there is only one man in a hundred thousand who is enough of a marksman to cut a limb with a rifle bullet. Some years ago a taxidermist friend of ours desired to get an oriole's nest overhanging a body of water. As we had been out shooting squirrels we volunteered the suggestion that we might cut the twig that held the nest. The first shot brought it down, greatly to the surprise of ourself and the taxidermist. We then tried to cut off other limbs in the same way, but failed every time. We concluded that our first shot was born of inspiration or luck.

Some have reported shooting into swarms with a shotgun, but in most cases but little has been accomplished, and the result has been that a great many bees have been killed. We have been "mad" enough to use a shotgun many a time; for there is nothing in all bee culture that is more annoying than for a fine swarm to settle upon an inaccessible spot 40 or 50 feet above ground, especially when you are busy with other work.—Ed.]

DOES BEEKEEPING PAY BETTER THAN FARMING?

BY DR. C. C. MILLER

An Indiana correspondent writes:

"I have the 'bee fever' bad, and would enjoy beekeeping; but as I have a good chance at farming, and as this is not a good country for bees, I am afraid to give up farming. The white clover sometimes fails; but there is always a fall flow. If one man gives his entire time to bees in two yards, from 100 to 150 in each, how much per colony could be expected one year with another?"

The easiest way to answer your question would be to say, "I don't know." It would be the truth too. Yet to so many the same questions are occurring that it may be worth while to talk a little about them. One reason that no clear-cut definite answer can be given is that localities differ so much. It is possible to find a locality specially adapted for some line of farming, but with little pasturage for bees. In such a place, of course, the average person would choose farming. In a place below the average for farming purposes, yet rich in bee pasturage, the case would be different.

Of still greater importance is the difference in people. There is such a thing as special talents. A man who cannot tell one tune from another is not likely to make a brilliant success as an operatic singer. That almost any one can make a living at farming is proven by the many who do make a living at it. Comparatively few are making a living at beekeeping, from which it would seem not so very unreasonable to conclude that few can do so.

Taking your question, "Does beekeeping alone pay better than farming?" it may be not very wide of the mark to say that while out of an average bunch of a hundred men each one may be able to make a living at farming, some a very poor living, and others a good deal more than a living, yet not more than one out of the lot could make a living at beekeeping alone.

The important question for you to decide is whether you are that one in the hundred. Perhaps the first and greatest qualification for the business is a great and abiding love for it. Your true beekeeper is so enamored of the business that he would rather make a bare living at it than to make a fortune at farming. And that very fact makes it possible that he may make more money as a beekeeper than as a farmer.

So you see the question depends upon what you are yourself. The safe way for you to find out is to feel your way. Don't be in a hurry about burning your bridges behind you, but hold on to farming until you have gradually grown into beekeeping on the side to such an extent that you can feel safe in dropping every thing else without asking advice from any one else about it.

Your question as to what may be expected from two yards, each containing from 100 to 150 colonies each, is again one that can not be answered by definite figures in a few words. In some locations 150 colonies in one apiary would yield no surplus whatever, for the field would yield no more than the bees would need for their own use. Likely enough, in most places more surplus could be obtained from 100 colonies than from 150.

From what you say in a part of your letter that is not printed, you are evidently impressed by the fact that last year from 72 colonies, spring count, I averaged a little more than 266 sections per colony. But please don't understand that getting 266 sections per colony has become a fixed habit with me. So far as I know, that's the world's record for as many as 72 colonies, and I reached it only once in the past 50 years. (Don't make the mistake, either, of calling it, as some have done, 266 *pounds*. If we call 12 sections 11 pounds, it will be about 244 pounds.) And it's not very likely I'll reach it again in the next 50 years. I am more likely to have years of dead failure. In some locations you will do well if you average 30 pounds of comb honey per colony, or 45 of extracted. In others you may get twice as much.

But there's something else to be figured in, and it figures big, big. It's the extra amount beekeeping puts into your life, provided there's the stuff in you for a true beekeeper. Compare your life as a true beekeeper with the life of a man who stays cooped up in a city office and accumulates his thousands. Living close to nature in the pure outdoor air, with wholesome exercise, your span of life is likely to be 50 per cent more than his. Then while he is looking forward to the day when he can retire from business and enjoy life—which time he mostly never reaches—you are having your fun right along with your work. So far as I am capable of judging in such a matter, if I were starting over again I wouldn't swap my beekeeper's life for that of John D. Rockefeller amassing his millions.

Marengo, Ill.

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SWARMS FROM DISEASED COLONIES NOT RARE

BY E. G. CARR

Deputy to the State Entomologist in Bee Inspection

Deputy Stine of Ohio, page 822, Nov. 15, 1913, mentions the occurrence of swarms from colonies affected with American foul brood, and asks whether this is rare. In New Jersey this frequently occurs, both in the case of American and European foul brood, and it is evidently the only reason bees have not been completely wiped out in some parts of the State.

Both forms of foul brood in this locality affect different colonies in varying degrees. perhaps depending on the vigor of the stock, coupled with the prosperity of the season.

A colony only slightly affected with foul brood before the swarming season will usually cast a swarm if other conditions are favorable. This swarm, hived after the old plan, in an empty box or keg, uses up its infected honey in comb-building, and is likely to pass that season healthy, only to be infected the next spring by robbing the parent colony which has by this time become so weakened by disease as to become a prey to robbers, and thus the cycle is completed.

THE DANGER IN GIVING THE BEES TOO MUCH CREDIT AS POLLENIZERS.

It would seem that we as beekeepers are in danger of defeating our plans by claiming more for the bees as pollenizers than the facts will warrant—not that bees are not *necessary in some cases,* but it must be admitted that there are cases and seasons when bees are absolutely not needed to insure good crops of fruit; but as it is impossible to foretell the seasons when the wild pollenizers will be scarce, and the weather unfavorable for their flight, it is necessary to keep bees as an *insurance,* and this should be dwelt upon when presenting the subject.

In regard to whether bees or other pollen-carriers are needed to insure a crop of grapes, page 82, if the editor will stop in some greenhouse where grapes are grown under glass, and ask the attendant how he secures fertilization of the blossoms, he will find that grape pollen floats in the air, as does corn pollen, and no carrier except the air is needed.

New Egypt, N. J.

[It is true, as our correspondent says, that bees are not necessary in the work of pollinating *all* kinds of plants or shrubbery. He is also probably correct in saying that grapevines are very largely if not altogether self-pollinating. But this does not prove that bees will not be of considerable assistance some seasons. On the other hand, evidence is piling up more and more, showing they are a positive necessity in pollinating fruit-trees of all kinds. See what the Repp Brothers have to say on this subject in the May 1st issue.—Ed.]

TWENTY YEARS AMONG GRAPES

BY FRED COLE

I have made many observations in the Lake Keuka grape-belt, where there are hundreds of acres of grapes within the flight of bees from a yard. As to whether bees bite the skins of grapes that have not been previously bitten by birds or some other insect, I would offer as an argument that they do not, the fact that the Concord, which has the tenderest skin of any grape of which I have any knowledge, but which is a large grape, and which the birds do not attempt to eat, are never visited by the bees except when the grapes become cracked in handling during picking, while on the other hand the Delaware, which is a small grape that the birds eat more or less, but which contains a much thicker skin than the Concord, is visited by the bees, and they may be found eating away the skin where the birds have injured them. I could never find where the bees eat into the skins of even the tenderest-skinned varieties where the birds had not first been.

In regard to the bee as an agent in cross-pollenizing the grape, I would say that in working in the vineyards while they are in bloom I have seldom seen a bee on the blossoms—not a dozen times in my life, I think, and I have been in vineyards more or less for twenty years.

There are quite a few bees kept in this section. There is a yard of about 80 colonies one mile and a half or two miles north of me, and I have a yard myself of twenty colonies, surrounded on three sides by vineyards.

Pulteney, N. Y.

ANNUAL MEETING OF THE EASTERN NEW YORK BEEKEEPERS' ASSOCIATION

BY S. DAVENPORT, SEC.

The sixth annual convention of the Eastern New York Beekeepers' Association was held Dec. 16, 1913, at the City Hall, Albany, The president, W. D. Wright, presided. There was a much larger attendance than at the annual meeting in 1912, and deep interest was manifested throughout both sessions.

Following the reading of the minutes of the previous meeting, and the secretary's annual report, the president stated that the treasurer, Mr. A. Kingman, having retired from the beekeeping business, had sent in his resignation. The treasurer's report showed a handsome balance in the treasury. The president delivered his annual address, covering a review of the season for honey production, the current prices of honey at retail and wholesale, and other topics of interest.

The secretary, having served in that capacity for several years, expressed a desire to be relieved from the office. With the retirement from office of the treasurer and the secretary, the annual election of the board of officers stood as follows:

President, W. D. Wright, Altamont; 1st

Vice-president, S.Davenport, Indian Fields; 2d Vice-president, C. W. Hays, Brookview; Secretary, I. V. Labdell, Troy; Treasurer, I. J. Stringham, New York City.

Erl A. Bates, M. D., chairman of the Joint Horticultural Commission, and National President of the Grand International Council of the United States, was present at the afternoon session, and was introduced by the president. Dr. Bates made a statement of the objects of the Horticultural Commission, of the necessity for it, and of establishing a home-building for horticulturists and beekeepers at the State fair-grounds at Syracuse. He suggested the sending of two delegates to the proposed horticultural meeting in January, to be held at Albany, to consider jointly the proposition.

The president was authorized to appoint the two delegates proposed. By a later motion the president was elected as one of the delegates, and he appointed I. V. Labdell as his associate delegate.

The convention was favored with the attendance of Prof. Allen Latham, of Norwich, Ct., who was introduced by the president, and addressed the meeting on self-ventilating hives and honey-houses. His address was interesting, suggesting many details of observation, which controverted some popular ideas of beekeepers.

Dr. G. G. Atwood, of the State Agricultural Department, was introduced, and gave an address on the improper spraying of fruit-trees in blossom as affecting the interests of beekeepers, and also on the spraying of obnoxious weeds for their eradication. He also referred to and described the State Agricultural Department's display of honey at the Chicago Land Show.

Rev. I. V. Labdell, of Troy, being announced on the program, addressed the meeting on his subject, " A living and more from bees." It was an exhaustive, interesting, and instructive discourse on the practical working of the subject.

W. D. West, of Middleburgh, State Bee Inspector, discussed his subject, " The wintering of bees," giving very full directions for caring for the bees during the dormant season by different methods.

A vote of thanks was extended to Prof. Allen Latham for his attendance and able address. He was elected an honorary member of the association.

Mr. Labdell made extended remarks on making greater efforts to advertise honey and create a demand for it, and offered some suggestions for that purpose.

But one question appeared in the question-box, in answer to which Chas. Stewart, of Sammonsville, State Bee Inspector, gave directions for protecting bees against the depredations of skunks.

The influence and attendance of this, the sixth annual convention of the association, were very encouraging and satisfactory.

The president reported that the 40 dozen nature-study school tablets, illustrating the honey-bee, and advertising honey, ordered of the New York State Beekeepers' Association, and paid for by him, had been so damaged by water in transit or in storage that they were entirely useless, and had been destroyed. He was authorized to draw on the treasurer for whatever amount he was unable to collect in reclamation for the damage and loss of these goods.

At this meeting the members present paid their annual dues, and much other business pertaining to the working of the association was transacted.

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SOME PRACTICAL EXPERIENCES IN CATCHING STRAY SWARMS

BY J. M. KINZIE

If there is any thing that boys like it is climbing trees, and just such fun as comes from getting the swarms the trees furnish. My boys in California have built up an apiary of over 200 hives this way. One of them has bought a 35-horse-power automobile to haul his bees back and forth. He took off the back seat and has a kind of frame that he puts on, and is thus able to haul 20 hives at a time. I would rather have my boys engaged in some such sport than hanging around the saloon.

CATCHING STRAY SWARMS OF BEES.

I have often heard people make the remark, " My! I should like to have a hive of bees if they did not cost so much." In this article I propose to tell how to get one or more stands without much cost. In most localities there are more or less swarms that go away every year. Some of them come from hives of bees; but the most of them come from bees that are in trees in the woods or large apple-trees. The way we do it is as follows:

We make boxes and put two to four frames in them, with starters of brood foundation one or more inches wide. We prefer to have the starters one inch wide, as then there is no danger of their melting down from the heat of the sun, as sometimes happens to hives having full sheets of foundation. We then take these boxes and put them in apple-trees, or trees along the roadsides, having first obtained permission of the owner to do so. We set the boxes on a limb and tie them with strings. The boxes have an entrance like that of a real hive, and we make several half-inch holes in the ends, covering these over with wire cloth. We prefer to set the entrance facing the south or east, and to have old frames that have the scent of bees on them. We start out with a load of these boxes, and keep an account in a book of the place where each one is set. The boxes are numbered from 1 up. One year we got 30 swarms in this way, and 5 in one tree. I might say that we had over 70 boxes out.

In California last year one of my sons caught 9 swarms in this way, and he found 5 more in a ledge of a rock, a distance of 150 feet inside. Some of these swarms were so far back from the face of the rock that he had to make a knife with a long handle to reach in to cut out the comb. This year they are figuring on getting 200. As the country becomes cleared up, and the trees cut down, it is evident that there are not so many holes in the trees for these stray swarms to take possession of. Out of the dozens of swarms that we have caught in the past eight years, only one has developed foul brood.

Rochester, Mich.

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SEPARATORS USED ONLY WHILE SECTIONS ARE BEING FINISHED

BY OTTO A. PARK

In the A B C and X Y Z of Bee Culture I read that separators may be omitted if common beeway sections are used, no wider than the brood-frame—1⅜ inches from center to center, with full sheets of foundation fastened to all four sides of the sections. Combs would be built nearly as straight as when separators are used; but beeway sections only 1⅜ inches thick would not hold a pound of honey; so it was up to me to have some supers built with section-holders to be self-spacing, and to have sections made 1⅝ inches wide on the long side, and 1⅜ on the short or narrow side, the same being only ⅛ cut out of each side. When two sections came together it would leave a beeway, and at the same time have some protection for the comb when shipped. In order to use them I had to put one fence separator in the super first; then the eight section-holders, with four sections in a holder. This super was far ahead of any thing I could find for it had a great many advantages over the old. The bees would enter them at once, and there was no need of any separators until the combs were three-fourths drawn out. Then one of the section-holders was removed from the super, the remaining holders spread apart, and a separator dropped in between each holder, super springs being put in to hold them together.

It will be seen that, by the above plan, the bees have no separators to begin with, and this is why I could get combs built so readily. If baits were used they were put one in each holder. When putting in the separators the holder that was taken out to make room for the separators was used for bait in the next empty super that was usually put on at that time. If they were not used as baits they were left in the holders; and when there was enough to fill another super it was given to a colony that could use it.

If I didn't use full sheets of foundation, and wanted the bees to build combs full at the bottom of the sections I would turn the holders upside down, before the combs were capped over too near the bottom. Every one knows that sections are filled out much fuller at the top than at the bottom; and this turning the sections bottom side up was just what was needed to fill the sections out full at the bottom.

I will admit that I have not tested this plan as much as I should like, the reason being that, at the time I was raising comb honey, I could get only 12 cts. a pound, and could get that for my extracted. Last season I got 15 cts. per lb. Would it pay me to go to raising comb honey again? It brought 16 cts. per lb. last season.

Birmingham, Mich.

[With a difference of only one cent between comb and extracted it would surely pay you to keep on producing extracted honey.

It is just a question in our minds whether the gain in the time the bees entered the separatorless supers would make up for the extra labor involved in going through the yard to put in the separators later on.—Ed.]

Heads of Grain from Different Fields

THE BACKLOT BUZZER

The size of the army, when robbing is going on, and the way the little sisters show a disposition to defend their homes on a rainy day, kind o' makes a fellow feel skeptical about this universal-peace and equal suffrage problem.

Good Wintering Not the Case Around Lysander, N. Y.

In the issue for April 15, I note that bees, taken the country over, wintered very well. I can't understand this, for it was not so around here. We had about as hard a winter as I ever saw here for bees. At one yard of 50 colonies, well packed in sheds, in the southeast side of a big swamp, where northwest winds get at them, I lost nearly half of them. The rest are weak, with the exception of 12 colonies. Nearly all of those that died appeared to have done so with plenty of honey in the hives. In some cases there was honey all around the cluster. I never lost bees like this before. My man who has charge of this yard when I am in Florida says it was 20 below zero twice, with snow on the ground around the hives and the wind blowing a gale some of the time, so this might account for it.

My bees here at home, outdoors and in the cellar, did not winter quite as well as they usually do. I lost only a few, and those were mostly nuclei in the cellar. Two-thirds of my colonies were out of doors the past winter—the most I ever had out. I think a cellar is the best place for bees in this locality, take it one winter with another. It rarely goes as low as 20 below zero, and we seldom have one week of zero weather at one time; but we do have severe fierce winds and sudden changes, lots of snow usually, but did not have as much as usual the past winter. EDW. A. REDDOUT

Lysander, N. Y., May 1.

Queens that Lay 6000 Eggs in a Day; the Sagging of Comb Foundation and Securing Perfect Combs

In the A B C and X Y Z of Bee Culture I note that A. C. Miller speaks of queens that will lay 6000 eggs per day. Has any one any such queens for sale? and what do they cost?

For several years I have been much interested in the securing of perfect combs in the brood-nest. I used a lot of the Danzenbaker hives, and tried all the methods recommended by Mr. Danzenbaker; but the bees refuse to obey his instructions.

Now, when I put a sheet of foundation into a wired frame it seems to me that, if I am to get a perfect comb, the sheet should entirely fill the frame, and then it would be attached at all four sides. In regard to the foundation sagging, does it sag more on the wires, or do the wires stretch?

Why is it that the foundation on the market is cut so much smaller than the frames? I think that, if it comes nearer to the bottom-bar, there would be a better chance to get perfect combs.

LEWIS P. FARWELL

North Charlestown, N. H., April 30.

[About queens laying 6000 eggs a day, we would say that Mr. Miller merely stated the maximum number that a queen *could* lay in a day. The average queen probably does not lay more than 300 or 400 in a day; and in the height of the season not much over 1000 eggs as a regular day's job; but if she is given an empty comb, cells all cleaned out, she may lay 3000 or even 6000 eggs in a day.

You will not have very much difficulty in getting perfect combs with the Danzenbaker hives. All that is necessary is to reverse the combs when some honey is coming in, and by that means some combs will be filled down to the bottom-bar. It is not practicable to put in sheets of foundation large enough to reach clear down to the bottom-bar unless vertical wiring is used or wooden splints. Some do not succeed with the latter, and the former is not practicable with thick-top frames. When the bees draw out a sheet of foundation it is inclined to stretch downward; therefore it is necessary to have the sheets cut of such a size that they will be about ¼ inch, when inserted, less in width than the inside depth of the frame.—ED.]

Not Bee Paralysis but Starvation

I just had my first case of bee paralysis, and, of course, I was a very good doctor and quickly diagnosed the case as paralysis. I was going to try the Poppleton cure, as it was on one of my largest colonies of bees, and I wanted to do something very quickly. They were coming out of the entrance of the hive at about the rate of ten to fifteen per minute, and it seemed that they were increasing. They began to show symptoms about 4 o'clock in the afternoon, and by next morning I had something like one-half to a gallon of bees dead in my hive. I decided to isolate this hive immediately, so I took it up and moved it about a mile from the other apiary and opened it up, and it looked to be about a good-sized swarm of bees on the bottom-board, and, lo and behold! I discovered that there was not a drop of honey in the comb, and practically all the brood had hatched out with the exception of two or three small patches. I gave them some sugar syrup immediately, and they went at it as pigs would swill, and I found that my paralysis was nothing more nor less than starvation. I also realized then that the queen was a very prolific one, and the swarm an unusually large one. She had used up all the stores in the hive in raising young brood, and we had just had three days of very cold rainy weather which brought about the starvation.

Kinston, N. C., April 21. J. W. BLACK.

What Made the Paint Come off the Hives? What Kind of Paint to Use

I do not want to be understood as being against unpainted hives or painted hives, as I am only a beginner; but last fall I fed my bees on sugar syrup from October 1 until it was too cold to feed them, and they went into winter quarters with their hives running over with bees. In preparing them for winter I used some heavy wrapping paper over the hives and then wrapped around this a single ply of roofing paper after putting on top of my hives a super filled with planer shavings. I made one nice complete job of wrapping over the super and all. When I took off this paper this spring the paint had literally left the wood in patches from the size of a quarter up to the size of a silver dollar. They all looked as if they had been through a fire with the exception that they showed no char on the outside.

I had two colonies of ordinary size in the Danzenbaker hive. These showed no signs of blister, but the others are in very bad order. I am going to transfer these frames to other hives and scrape them and repaint them. Is there any way I could prevent this blistering next fall, and also wrap my hives so that they will be warm?

Kinston, N. C., April 21. J. W. BLACK.

[It is important to have the hives thoroughly dry before painting. If the lumber is a little green at the time of putting on the priming coat, the paint would easily flake off later; but this was evidently not your trouble, as your Danzenbaker hives, painted presumably with the same paint, did not flake. Your paint did not have enough dryer in it or you put your wrapping on the hives when the paint was too green. Unless the paint were thoroughly dry (and it would not be dry unless some dryer were used) the paper wrapping would take off the paint in patches just as you describe.

We advise a pure white-lead and linseed-oil paint. Some of the ready prepared paints on the market have neither lead nor zinc in them; and instead of linseed oil they have fish oil. Such paint is dear at any price.—ED.]

Five-banded Bees Immune to American Foul Brood

I see Mr. J. E. Crane is after the five-banded Italians. My brother-in-law (John Talbert) had 100 colonies, spring count, 1907, of three-banded Italians. They became diseased with American foul brood that summer, and in the spring of 1908 there were only 52 colonies left. I moved them down on the river near Mr. Nathan Sams, who had 80 or 90 colonies of five-banded Italians. At that time my home yard was on one side of him, and the Talbert bees on the other. Both yards had foul brood, and they were a good grade of three-banded Italians. The farmers were losing their bees on all sides of him. I was talking to Mr. Sams last fall, and he said he had never had a case of American foul brood.

In 1910 I commenced to raise five-banded Italian queens, and every time a colony had to be treated for foul brood I requeened with a five-banded queen, and last fall I went into winter quarters with only two cases of American foul brood. I like five-banded bees because they brood up early in the spring, and get ready for the honey-flow when the second cutting of alfalfa blooms.

Freewater, Oregon. C. A. MCCARTY

Requeening without Dequeening

The "basic law" for requeening without dequeening, which Mr. A. C. Miller is in search of, Dec. 1, 1913, page 850, will probably be found in Mr. G. M. Doolittle's writings of some twenty years ago. Mr. Doolittle found that, on giving all colonies a queen-cell at the close of the white-honey harvest, about a third were accepted each year. He concluded from this that queens in the small hives he used at that time began to fail at about the third year, and that a queen-cell would be accepted by all colonies headed by a failing queen, even though they had not themselves made preparation to supersede her.

I believe Mr. Doolittle has found that, in the larger hive he now uses, the queen usually begins to fail in about two years. Mr. J. B. Merwin, in the article following Mr. Miller's, brings out the same point where he says, page 852, "This plan will work well on all queens two years old or over," and that is probably the "basic law"—"a queen-cell will be accepted by any colony with a failing queen."

Mr. Merwin may greatly simplify his work by using a ripe or nearly ripe queen-cell. I believe, though, that when you wish to requeen a colony having a vigorous but undesirable queen, the "basic law" will require you to do it in the good old way.

Had I any desire to "jab" Mr. Miller or the editor I would suggest that they procure a small work entitled "Scientific Queen-rearing," by one G. M. Doolittle, in which they may find the plan which the editor says, page 852, is "worth pasting in the hat."

Audubon, Iowa, Dec. 15. E. M. COLE.

Bees Steal Eggs from Another Hive to Raise Queen

There have been many articles written the last few years, showing that bees sometimes move eggs from one hive to another. I think we had the most positive proof to that effect of any that I have seen. Last summer Mr. Frank C. Pellett, our State bee-inspector, and a friend with him, were at our place. After inquiring about the bees I told him that all seemed well but one colony, and we went to examine it. We commenced on one side, and took out the frames to the center, and found no brood nor eggs in the hive, nor any queen; but we found two queen-cells—one sealed and the other about ready to seal, and that was all the brood there was in the hive—no queen. It seems to me that this could not have occurred unless the bees had transferred eggs from some other hive. In a few weeks I examined it again and found two frames pretty well filled with brood and eggs, and as fine a young yellow queen as I ever saw.

Bedford, Iowa, Feb. 10. J. H. FITCH.

Are Fumigated Combs Objectionable to Bees?

I have accidentally made a discovery with my bees that leads me to believe that disinfecting old combs with bisulphide of carbon to destroy wax moths makes the combs unfit for use again for brood-combs. I have never seen any thing in GLEANINGS about this chemical doing any harm to the combs; but, as I said above, I am now of the opinion that it does.

Seymour, Ct., Feb. 5. P. J. HOEVEL.

[We have fumigated considerably with carbon bisulphide, and have never noticed any bad effects afterward, although, since our combs thus fumigated are very seldom given the bees again any way, we can not say for sure. If any of our readers have had any opportunity to test this matter, we should be glad to hear from them.—ED.]

A. I. Root

OUR HOMES

Editor

I pray not that thou shouldest take them out of the world, but that thou shouldest keep them from evil.—JOHN 17:15.

As thou, Father, art in me, and I in thee, that they also may be one in us; that the world may believe that thou hast sent me.—JOHN 17:21.

On page 275 a good friend suggests doubling up the country churches, and asks me if I justified the existence of sects; and on the next page another friend tells us how a good live pastor got his church so filled that there was not standing room. He visited *eighty saloons* in the town on Sunday and Sunday night, and found *only six* paying any attention whatever to the Sunday-closing law. Again, on page 285 Dr. Miller discusses having so many denominations. As I was down in Florida I did not see it until it came out in print; and you may be sure I had a big laugh at his expression, "us younger ones." Is it not a pretty good joke from a man "eighty-three years young"? Well, I think I can pretty well agree with my good old friend Dr. Miller. If we could get together and talk it over I assure you we should not be very far apart in our opinions and suggestions. Now, right here comes in a kind word from a good friend about "so many denominations."

Mr. A. I. Root:—On page 275 some one asked you a few very pointed and consistent questions. I have not seen any answer as yet. I should like to say a word or two on this subject, as it is a question that lies very near my heart.

1. Is the church of Christ celestial only, or is it a part of the world?—Matt. 16:13-19. This very clearly locates Christ's church on this earth, and I know of no scripture that changes its name in heaven. Wherever that may be is of little consequence to the member of Christ's church.

2. Divisions certainly are carnal, or else our Savior uttered a very meaningless prayer in John 17 and Paul in I. Corinthians 1:10.

3. Do you justify the existence of sects? This is answered in the quotation given above in our Savior's prayer for unity. Then the question is, "Does Christ justify the existence of sects? From my limited knowledge of the New Testament I have no hesitancy in saying it is sinful.

I heartily endorse what a brother has to say on page 285. I believe he has about the correct notion of it. When we get down to "brass tacks," and quit quibbling over tweedle-dee and tweedle-dum, and *do* what the Lord says, we shall be seeking a basis on which all Christendom can unite. 'Let us consign to the flames all articles of faith or rules of practice or any other man-made creed, and take as our rule of faith and practice the New Testament. When we speak where the Bible speaks and are silent when the Bible is silent, we shall be at a point where all Christendom will be a united church of our Lord Jesus Christ.

ALBERT HOLLINGSWORTH.

Terre Haute, Ind., April 25.

While I may not be prepared just now to indorse *all* of the above, I wish to add emphasis to the concluding sentence: "When we speak where the Bible speaks, and keep silent when the Bible is silent, we shall be at a point where all Christendom will be a church of the Lord Jesus Christ."

Dr. Miller speaks of having so many denominations just because of minor unimportant differences.* While grave questions confront us that must be taken care of at once, not only ministers of the gospel, but good Christian people stop to fuss and bother and argue about things that seem to me to be pure nonsense. That expression does not half tell it. If you will excuse slang I would put it this way: It seems just *awful* that good, educated people should waste their time and energy on things that are but little more than "tom-foolery." After I read "Pollyanna" some of the good friends in Medina told me I should read a new book entitled, I think, "The Inside of the Cup." Now, while there is a lot that is good in the book, the author, without the least bit of reason, drags into it the dispute of the doctrine of the immaculate conception of Jesus. I threw the book down in disgust and said, "What good can come by taking up a question like this, that has no possible bearing on the needs of the day?" There is enough tendency already, God knows, to question the truthfulness of the Bible as God's holy word. Suppose somebody has been brought into the church, prayer-meeting, or Sunday-school; and suppose, further, he has not given these matters much attention; what possible benefit could *he* get, spiritually or in any other way, by listening to this silly criticism? If that is a part of the "new higher criticism," I wish to know no more of it.

I now wish to give one more illustration about wasting our time and energy on a matter that cannot possibly benefit the world in any way, as I look at it. Some very good people are wasting their energy, and I do not know but a good part of their lives, toward what they call the importance of changing Sunday to Saturday. Such a course, as I see it, not only accomplishes nothing, but it blocks the way, mixes things up, handicaps themselves and everybody else they run against, without having accomplished any thing. I have wondered again and again how it was possible in this day and age of the world, when superstition and folly are fast giving way to good common sense and righteousness, that these people should *continue* in their queer notions. While I write, our people here in Ohio are discussing the adoption of eastern (New York) time in place of the present central (Chicago) time. I confess I think it will be an advantage to do away with having an hour's difference between Cleveland (and Medina) and New York; but the papers are full of what I cannot help looking at as silly talk about giving the people "more daylight" by changing the clock an hour ahead. I say, and have said repeatedly, change the clocks by all means, if it seems best; but do not by any means change the hour of getting up and going to bed, simply because the *clocks* have been changed. Neither is there any need of changing the time of starting and stopping our factories, the time of school, or time of going to church, prayer-meeting, etc. The time of starting business and closing it has been settled by universal consent largely, according to the rising and setting of the sun. Why in the world should we make *any* changes simply because the *clocks* are changed? When old Sol decides to change his time of rising in the morning and of going down at night, then we may consider a change in our habits.

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* It just now occurs to me that Dr. Miller is a *Presbyterian*—at least that is my recollection. Well, Mr. Calvert has just returned from the State conference of *Congregational* churches, and he says the matter came up there in regard to doubling up denominations. In fact, there has been talk for some years past of uniting the Congregationalists, Presbyterians, and the United Brethren. I think one thing that blocked the way was a disagreement as to what the new body should be *called*. Well, here comes in the joke on Dr. Miller. Mr. Calvert says the conference reported there are twelve kinds of Presbyterians. My good friend Miller, hadn't you Presbyterians better start the ball rolling by first reducing the *number* and the *kind of Presbyterians?* Couldn't you possibly coax them down to an even half-dozen?

I think no one will doubt for a minute that the saloons and the whole liquor traffic might have been banished long, long ago, had our churches and their respective pastors been united as they are getting to be, just now. The awakening to the evils of intemperance has been a long and slow process; but, may God be praised, it seems now fairly well in sight; and the work of driving them out, I verily believe, will unite our different denominations as nothing else has ever done.

I have alluded several times lately to the measures that are being adopted to save human life. and to alleviate sickness and suffering—the "safety first" organization. Now, if our churches, Sunday-schools, and Endeavor Societies could drop unimportant differences, and give the same attention to the children, including the grown-up children, how much might be accomplished! Let us keep the good old Bible as it is—speak when the Bible speaks, and be silent where the Bible is silent. There has been a discussion more or less for ages, perhaps, as to what becomes of us immediately after death. Do we have a period of sleep, as some claim, or are all to be received, like the thief on the cross, in "paradise this day"? Perhaps it is well enough to search the scriptures carefully and see what they tell us about it; but I would not waste much time in the matter. Shall we not use the same time and energy in taking care of "thieves" who have not gone *so far* as to reach the cross? And look out for the children that are growing up, and see that they do not get into the *company* of thieves, and that there be no thief-breeding places such as saloons, etc., in your immediate neighborhood. By no means let us sit down with folded hands, as Dr. Miller puts it; but after we have gotten up and started, may God help us to use our strength and energy in fighting *real* evils—things that are a menace to bodily health as well as to spiritual growth. The dear Savior in his prayer in our opening text did not ask the great Father to take his chosen ones out of the world. He meant they should stay in the world, and that they should be "the salt of the earth;" that they should mix in with saints and sinners—*especially* the sinners. But he did pray that the Holy Spirit should keep them while in the world and protect them from all the evils surrounding them.

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HORSERADISH AND CHRISTIANITY.

Perhaps, friends, you think the above a queer combination; but listen to the good brother below, who wants his name withheld:

> In the April 1st number of GLEANINGS, page 277, you speak of selling horseradish, which cost 4 cts., at 10 cts. That is 150 per cent profit. If a pound of honey costs 10 cts., and sells for 25 cts., that is 150 per cent profit. Now, where can we draw the line between just and unjust gain—I mean, looking at it from the Christian standpoint? I have thought much on this subject, and have tried to look from *both* the producer's and the consumer's standpoint.

My good friend, I may have been a little careless; but did you not *also* notice the sentence, "but I tell you it took some 'bossing' to secure smooth running all the way from producer to consumer"? In the "4 cts." mentioned I did not count my time at all. Should not the man who studies and works up such a short cut have some pay in the shape of profit, for inventing the machinery, or establishing the industry? Mrs. Root has all her life "put on the brakes" to my "great discoveries," and she has often been right—they didn't pay cost. Therefore I greatly enjoyed demonstrating to her that I was making "a safe margin," and also having pleased customers. Once more, there is a disposition all over the land to trade in "nickels" and avoid fussing with pennies. Five cents for something that costs four cents, or perhaps a little more, unless the demand is enormous (like Uneeda biscuit, say) would be risky. You see the cost of handling a five-cent deal is just as great as a 25 or 50 cent one.

BEES WANTED FOR ORANGE GROVES AS WELL AS APPLE ORCHARDS.

We clip the following from the Florida *Times-Union.* While the substance of it has appeared recently in these columns we reproduce it as showing how rapidly the general press is disseminating the truth concerning bees as pollenizers of fruit.

BEES: THEIR VALUE NOT APPRECIATED.

If the office of bees in increasing the yield from plants were fully understood, there would be many more apiaries in Florida than there are at present. It is said that encouragement of beekeeping in a certain district of Nebraska, where much alfalfa is grown, resulted in the addition of more than 200 per cent to the yield of good seed of high germinative powers in the field of that valuable legume and hay plant. We have heard of a citrus grove in South Florida which bore well for some years. Year before last some one discovered a bee-tree near this grove, cut it down, and thus dispersed its inhabitants. The following year there was almost no crop from that grove.

Not only fruit-growers but observant truckers are aware that they are much indebted to the bees. The little honey-gatherer dives into the depths of a blossom in search of nectar, and, emerging, carries off much pollen on its fuzzy coat. Within the next blossom of the same species it visits it rubs much of this pollen on the pistils, securing the fertilization of the ovules and the consequent formation of fruit. Cross-fertilization, so essential to the stamina of plants and animals, is made more certain by the visits of the bees. So well is the useful agency of the bees understood in many parts of the North that fruit-growers maintain bee colonies in their orchards—not so much for the honey, which is regarded rather as a by-product, but for the sake of increasing the yield of the trees.

If the bee is so useful in a climate so cold that the hives must be protected most of the winter, and the bees must be fed after a severe season in order to preserve them, how much more should the busy denizen of the hive be encouraged to thrive and multiply in a climate in which it can gather honey practically all the year, and in a land where fruit and vegetable growing is so great an industry? There is practically not a day in most of our years when the bee cannot find some blossom from which to gather honey—in a large part of Florida not a single day. This, therefore, should be a land of honey. Apiculture is so much easier a following in Florida than in more northerly latitudes—should be so much more remunerative—that we should have hundreds making it a livelihood.

Some fear stings; but there are breeds that are gentle in disposition, not easily aroused to attack. Experienced beekeepers often dispense with protection while working among their bees, having learned how to avoid alarming, or rousing the resentment of their charges. Apiculture does not call for a large expenditure of money to begin it, nor a large area in which to conduct it. There are instances of profitable bee colonies being maintained on house roofs in large cities. It makes no great draft upon one's time nor large drain upon one's pocketbook. Bees are, of all living creatures on the farm, the most able to take care of themselves, especially in a genial climate, and there is no more certain crop than that of the hives.

"SEED BEES."

The expression, "seed bees," caught my attention while glancing over a copy of the *Farm and Fireside.*

A POUND OF SEED BEES.

By buying bees in pound packages one is able to get a start in beekeeping at the least cost, and the system is economical for those who have lost considerably during winter or in early spring.

The middle of last April I ordered three one-pound packages of bees, each pound to be supplied with a laying queen. The price per pound for bees was $1.50, and the queens $1.25 each. These came from Fitzpatrick, Alabama. They arrived on my Wisconsin place on the 18th of April in good condition. On arrival each pound was put on four drawn-out Hoffman frames, in double-walled hives. An extracted super was put on top.

They were fed daily on a syrup composed of equal parts of sugar and water. They immediately started brood-rearing, but one of the queens turned out to be a drone-layer. The other two packages increased.

These two pounds were increased to five rousing colonies; and, besides, over 100 pounds of honey were extracted.

The expressage on these three packages was $1.20. This brought the total up to $9.40, or $1.89 per colony.

The cages were six by seven, and eight inches high. They arrived as one package, being arranged one on top of another, two inches of space between each. Each was enclosed with netting, except two sides where a board was used.

I am sure it would not have been possible to get the above results if I had used single-walled hives, because the atmospheric changes would have been felt too keenly.—*Oscar Kazmeier.*

Two important points are brought out in the above—first, that it is possible to purchase bees by the pound and have them shipped as far as from Alabama to Wisconsin, and still prove to be a profitable transaction—so much so that two pounds may increase to five and give over 100 pounds of extracted honey besides; and I am strongly impressed with the fact that young bees at the proper time in the spring may be shipped from Florida and other southern States to points here in the North so as to be a paying investment all around; and it may result in a great and growing industry.

THE "HOPE FARM MAN" OF THE RURAL NEW-YORKER, AND BEE CULTURE.

Our readers who are conversant with the *Rural New-Yorker* will be pleased to hear, I am sure, that the Hope Farm Man is getting interested in bee culture. He recently wrote the A. I. Root Co., asking some questions about the case of bees. After getting a reply from E. R. Root he writes as follows:

Mr. E. R. Root:—I am very much pleased with your letter, and thank you heartily for sending it.

This is just exactly what I wanted, and really is the most interesting article on bees that I have read in a long time. It tells me exactly what I wanted to know, while I confess that most of the articles on bees don't seem to tell me any thing at all. What you say is exceedingly interesting, and I believe you are entirely right regarding the effect of a colony of bees upon apple and peach bloom, or setting of the fruit. Our bees appear to be very happy. I have one of the redheads who thinks he is going to make a beekeeper. The bees stung him the other day, and he certainly let out a number of screams, but I think he will get over it, and I am greatly pleased to have our children take so much interest in the care of these busy little creatures. It appears that I was right in thinking that there may be lazy bees as well as lazy men. I know that the hired man generally has his off days, when, if you put him alone at some work in the hot sun, he is sure to seek the shade and think his work over with great care.

I had a colored gentleman working for me once, and I tried to tell him how careful he must be to think his work over and plan it thoroughly before taking it up, as he could accomplish ever so much more if he had it thoroughly organized. I sent him to a back field to put a bag of fertilizer on some corn. After he had been over there a long time I thought I would go over and see how things were doing. There sat Alic under a tree, looking at the bag of fertilizer. When I asked him what he was doing he said, "Well, boss, you told me to study this here work mighty careful, and I am doing just what you told me." The whole subject of beekeeping is coming upon us as a very interesting thing. I really didn't know there was so much to it, and I am glad of the chance that has enabled us to get hold of these little friends. I am greatly obliged to you for your kindness in answering the questions.

New York, May 25. H. W. COLLINGWOOD.

IS THERE NO CHANCE FOR A POOR MAN TO KEEP BEES?

My dear Mr. Root:—I worked for so-called Christians for 25 cts. a day when 16 years old, and the memory of rats crawling over my bed at night still lingers. I got up in winter at five o'clock, and hauled manure all day in the cold for 25 cts. Were it not for the stupor whisky gets the laboring classes into, conditions would have improved long ago. But what can you expect?

It makes the hot blood come to my temples when I see the extravagances of rich men who control legislatures. They foist whisky on an unsuspecting public, and then appeal for votes from that same public. Roads are being made in this State that will not last. Sewers are put through and no guards on the mouths. These men are the enemies of society, who openly boast that woman suffrage is disrupting the home. I love bees, but if we keep on destroying homes, no one but rich men can keep them.

SAMUEL B. HENDERSON.

Centerville, Ind., Oct. 20.

My good friend, I too worked for 25 cents a day riding a horse to cultivate corn; but I had a good bed because I boarded and lodged myself when I got only 25 cents. I, too, feel the hot blood come to my temples when I see rich people wasting money on their diamond necklaces, pet dogs, etc.; but may I suggest to you and others who claim there is "no chance for a poor man," that many of the great men of our day, and *very many* of the rich men of our day, started as poor boys? Now, it is the poor boys who are blessing the world. The sons and daughters of the *millionaires* are the ones to be pitied. Is it not so? I fervently thank God that he started me as a poor boy on a farm; and when Mrs. Root and I were married we had comparatively nothing; and I verily believe that, had our good parents been able to give us a thousand dollars, or ten thousand, to start a home with, it would have been a handicap instead of a blessing. I should like to ask all of our readers who agree with me in this to raise their hands; and as you drop your hands, let each and all thank God that he *was* born poor, and had to fight his way in this great busy world.

In regard to bees, where is the boy who can not scrape up money enough to buy a single colony to start with? and I believe his chances will be better with this single colony than if his father were to give him a whole apiary.

POULTRY-KEEPING IN FLORIDA.

The clipping below from the *Florida Grower* will answer a lot of questions:

POULTRY PAYS.

I cannot help replying to the man who made the statement some time ago to a northern friend that poultry did not pay in Florida. I arrived here on September 21, 1913, and on November 2 a friend set a hen for me, and the result was ten little chicks. I paid for the hen 75 cts. and 50 cts. for the eggs. On March 25, 1914, the pullets started laying, and on March 28 I sold four of the roosters at 21 cts. per pound; the four weighed seventeen pounds, for which I received $3.57. The cost of the feed for the four months had been $1, so, including the price of the hen and eggs, $1.25, and feed $1.00, I was $1.32 to the good and I still had the hens and the four pullets. The hen started laying on February 15. On April 21 I set one of the pullets, and to-day, May 11, she hatched twelve chicks from the thirteen eggs I gave her, and the old hen is sitting again also, and another one of the pullets. I will leave it to you whether poultry pays or not. G. H. N.

Davenport, Fla., May 12.

[You are certainly doing well; but you seem to have started a kind of perpetual-motion farm. But that is the way to do things, and we congratulate you upon your enterprise.—ED.]

Permit me to say that what is stated in the above is true. Any person of fair skill with poultry can do it every time. I have done it for the past seven winters, with the exception of getting the pullets to lay in March or April. We generally reach our Florida home during the first week in November, and usually leave for the North about the middle of April. If you are successful with chickens here in the North or anywhere else, you will be likely to succeed in Florida, with the tremendous advantage of having no weather in winter that will interfere with the raising of chickens. I feel sure, too, that the fireless brooder is all that is needed in Florida at *any* season of the year.

HIGH-PRESSURE GARDENING

THE IRISH COBBLER POTATO, AND THE SPORTING HABIT OF POTATOES IN GENERAL.

This spring, as usual, when I wanted some choice potatoes to plant (especially the Red Bliss Triumph), I did not find any in our locality. I would, of course, have brought home some of that kind that grew in Florida, but they would not have sprouted in so short a time after being dug. I have mentioned the seed firm of F. W. Gibbons & Co., of Boston, Mass., who grow potatoes, especially for planting in the South, by the hundreds of carloads. I wrote a friend in the employ of the firm in regard to my wants, and he sent me some very choice Triumph potatoes, and also included some Irish Cobblers. Here is what he says about the latter:

Brother Root:—The Cobblers are as early as Bliss, and heavier croppers; but they need heavier fertilizing than the late varieties, as they have to ripen their crop in two weeks less time than the late varieties. If I can get my hands on an extra-fine strain of Golden Bantam corn I will mail it. By passing along among the farmers' wagons in August one often finds a particularly fine strain of vegetable. I saw a farmer with fancy Golden Bantam last summer, but failed to take his name and address.

The Irish Cobbler is supposed to be a sport (origin unknown). It is evidently a sport, not a seedling, because the type is not fixed. You plant twenty true to name; and when you dig them you will find some have reverted to some one of the original parents, and some in a field will have blossoms of different colors. The buyer thinks he has been given mixed seed; but it is simply some tubers that reverted, and consequently the careful Aroostook farmer keeps "roguing" out the varieties in order to hold the type. Now, the type is this ugly square-shaped deep-eyed tuber with a deep cavity at the stem end, and an ugly, deep, puckered-up eye at the seed, and it very much resembles a Naval; but this type is very early, and a heavy yielder. It must have good rich soil, as it has to do its work in ten days less time than later varieties of potatoes.

EDWIN E. HARRINGTON.

Malden, Mass., May 21.

P. S.—*You owe me nothing* for this. I am now and always shall be indebted to you for so much good that I absorb from the last half of GLEANINGS.

E. E. H.

The above interested me greatly, for I have been for years watching the tendency of the different varieties of potatoes to sport. For instance, for several seasons I selected the hills of a certain variety that kept green after the others had died down. In this way I created a *late* variety from what had formerly been an early potato. In a like manner you can, by diligence, build up in a few years almost any kind of potato you want. The specimen of Irish Cobbler alluded to is a large nice potato, smooth and white, but with very deep eyes —so deep, in fact, that the potato was most ungainly-looking compared with the smooth round Triumph potatoes, as shown in the picture on page 317, April 15th issue.

In many localities, I believe, the Irish Cobbler is getting to be a great favorite as an extra-early potato.

I extract the following from the *Florida Grower* concerning the Irish Cobbler.

The Irish Cobbler is a good variety which is growing in popularity, and has the double advantage of being a very good keeper and shipper. The price of good guaranteed seed from any reputable house varies of course a little, but may be taken at an average of $1.75 a bushel, or about $4.50 a barrel.

SESAME IN THE WEST INDIES; NOT ONLY A FOOD BUT A HONEY-BEARING PLANT.

Mr. A. I. Root:—It gives me pleasure to send to you, under separate cover, some sesame. It is raw seed. I hope you will make several trials of parching so as to get the best flavor. I like it best served hot with a little white sugar. Eat and enjoy it.

My stock is down to about a quart now, so I could not fill many orders; but, all going well, I will plant in a week or so, and should have 500 lbs. in four months. Our sesame patch is alive with bees when in bloom.

Judging from the sesame letter in GLEANINGS (Mr. Thompson's) there are different varieties, to say the least. Some people who have written me from Texas describe the plant in a way that does not fit mine. Our sesame shells itself out when ripe. Pods open wide, and seed scatters at the least touch.

When you get your sesame parched just right, grind some very fine and try it in wheat-flour pancakes.

JOHN M. BREWER.

Columbia, Isle of Pines, W. I., May 12.

RAISINS BY THE TON, ETC.

Raisins are packed in great sheds, like corn in the East. One of our neighbors often has 100 or 150 tons on hand at once. We have only a small place, and our biggest raisin crop so far has been about 14 tons.

I wish every one in the country could read Our Homes. I am clipping the item on cigarettes, from New Zealand, and sending to my mother.

We have voted our whole county dry excepting Fresno and one oil town, Coalingo, and in doing so drove three roadhouses out of existence in our vicinity. We are only four miles from Fresno, and of course they catered to the tougher element of the city.

Our women take the franchise sensibly, and are, as a whole, more intelligent voters than the men. We have on overwhelmingly large Armenian, Greek, Italian, and some Mexican and other foreign population. Our district school has *14 nationalities,* while they claim *31* for Fresno. This means civic and moral as well as financial problems.

Fresno, Cal. CORA DENHAM.

CLAIMS RELATIONSHIP.

Mr. Root:—I get GLEANINGS, and think it is fine. Every man who is against the whisky traffic is my brother.

Woodville, Okla. E. L. CLIMMER.

Mr. Root:—I keep bees. I don't subscribe for GLEANINGS, but I often read it. Don't you think I ought to have a dasheen? C. C. MILLER.

Marengo, Ill., U. S. A.

HEALTH NOTES

THE HIGH COST OF LIVING—A NOVEL SUGGESTION.

We clip the following from the Cleveland *Plain Dealer:*

> Germany has furnished this country a striking example of the benefits of adopting sanitary improvement, and has surprised even her own most optimistic advocates by proving that the expenditures that go for bettering community conditions not only pay by protecting health and giving comforts undreamed of to the people, but actually reduce the cost of living.
>
> Invariably the proper paving, sewering, and supplying of water lines to communities has added to the value of the property an amount in excess of the cost of the improvements. Even sewage disposal under the present extravagantly wasteful methods in which millions of dollars' worth of fertilizers are lost, may be considered a paying investment because no city will advance commercially or exist healthfully until some provision is made for the safe solution of this big problem. In like manner the various systems of maintaining proper sanitary conditions, which are operated at an apparent loss, such as cleaning streets, oiling roads, draining swamps, and enforcing proper rules of sanitation, are actually remunerative, because property in such communities demands higher rentals, and the people avoid heavy expense due to unnecessary sickness.

Let me add to the above that we not only reduce the high cost of living by such sanitary measures, but we add also to the pleasures and enjoyment of living. The man or woman who is well nourished, has plenty of pure air, drinks only pure water, and has a sponge bath every day, enjoys life to an extent that thousands of people know nothing of.

THE AIR WE BREATHE.

A. I. Root:—Wife and I find many interesting and helpful items in GLEANINGS. That which has from time to time been written concerning a careful or proper diet, or the preservation of health thereby, is read with much interest; but there is another phase of the subject of perhaps equal importance, about which *less* has been said; and that is, the air we breathe and the way in which we perform that function. Our beneficent creator has furnished an abundant supply of pure fresh air, and yet a large part of mankind appear to place little value on it, and are apt to make very meager arrangements for maintaining its purity. The fact is, that by far the greater part of men and women only about *half* breathe—that is to say, very seldom *fill* the lungs to the bottom, but form a habit of using only the upper part of the lungs; consequently the dark or corrupt stream of venous blood, as it returns to the lungs for purification, fails to meet with the requisite amount of oxygen, and hence is not changed, but passes on, entailing extra work on the kidneys and other organs of the body, resulting in a poisoned system and the manifold discomforts of ill health. Since the introduction of modern methods of heating houses, that much dreaded disease, tuberculosis, has rapidly increased—owing, no doubt, to the lack of proper or of sufficient ventilation. Wife and I are near to our three-score and ten. Our children are all gone to try the world for themselves, and we dwell alone. We sleep in a cold room, with windows up all kinds of weather. We still maintain the youthful glow; and while our neighbors all about us have been greatly afflicted with colds and grip, we have been apparently immune. If people were less *afraid* of pure air, even if it is not always warm, and would cultivate the habit of deep breathing, it would free them from innumerable ills. Doubtless it is in accord with the will of God that we should understand and discreetly use the bountiful provision he has made for our sustenance and comfort while here below. And now "let us hear the conclusion of the whole matter. Fear God and keep his commandments, for this is the whole duty of man." Abiding in such a state we shall be willing faithfully to occupy until our Lord shall come; and whether the summons be "at midnight, at the cock-crowing, or in the morning," we shall go joyfully forth to meet him.

Barnesville, Ohio. THOMAS DERVIES

THE PANAMA CANAL ZONE AS A "HEALTH RESORT."

We clip the following from some journal, the name of which we have lost:

> After living for five or six years amid conditions which have produced such a startling reduction in the death-rate, will the men who have dug the Panama Canal be able to find any city in the United States which is sufficiently cleanly and healthy for them to live in? Let us hope, says *The Journal of the American Medical Association*, that the ten thousand Americans, returning to this country after a practical demonstration of what modern scientific knowledge can do to prevent disease, may prove to be the little leaven which will leaven the entire lump. If this is the case, the indirect benefits of the Panama Canal will be incomparably greater than its commercial or military value.

If it is indeed true, as we have continual reports, that our doctors are able to make such a place as the Canal Zone one of the healthiest localities in the whole world, shall we not in time be able to do the same thing in other places where people live, and bring about like conditions? May God be praised for what is being accomplished in the way of banishing preventable contagious diseases.

FROM "PRODUCER TO CONSUMER;" FROM OUR GOOD FRIEND T. GREINER.

I have finally come to it, namely, bought a hand mill, and have begun to eat my "graham-flour porridge" for breakfast. When you have a good mill (mine cost $3.35), and take good wheat, and clean it by hand to get the cockle and chess out of it, and then wash it and afterward thoroughly dry it, you get a nice clean product, and a good breakfast food at nominal cost. We cook it after recipes given by Terry and in GLEANINGS, and eat it with about its own bulk of apple sauce and a generous quantity of real Jersey cream. Probably it tastes good eaten with honey. But people who have never tried it can hardly appreciate how good apple sauce and good cream go with any kind of such breakfast food. Apple sauce and cream (not milk), half and half, alone make a dish fit for a king. But almost all cereals can be made to taste good when eaten with real cream or with good honey. My boys took quite a fancy at once to the home-made graham breakfast dish, and prefer it to shredded wheat, puffed wheat, and some of the other breakfast cereals we have been in the habit of using.

Your muffins are not so bad either; but they are no cure for the high cost of living. When the recipe calls for three quarters of a cup of sugar, two eggs, and a chunk of butter, etc., all this for a very small batch, it cannot be said to be a very cheap food. Fresh eggs are 50 cents a dozen in our local stores; but, how many people have good honey or plenty of apples and real Jersey cream? And how many have strictly fresh eggs? I am thankful for living on the farm, even if it is a comparatively small one. T. GREINER

La Salle, N. Y., Jan. 27.

I am very glad indeed to get this testimonial from so good an authority. Although it has been talked over and over about the saving in cost by grinding your own wheat, and the still more important saving of doctors' bills, I fear few people realize what it amounts to. One great reason for the present "high cost of living" is because of the fashion of buying packages of food in paper boxes and tin cans. And even the farmers who grow the wheat, I fear, quite often send their wheat away, and pay for having it manufactured into cereals fixed up in fancy pasteboard boxes, paying profits to the manufacturer, middleman, and grocer, and finally getting the same wheat that grew on their own farm, or may have done so, and do not get as good wheat nor as delicious food as outlined in the above by friend Greiner. Apple-sauce and cream, and ground-wheat mush, are about the most delicious foods I know of, and also the most nourishing, so far as my experience goes. May God be praised for apples, and wheat and cream.

FLEECING SICK PEOPLE.

There is one institution that seems to be untiring in its efforts in exposing the many medical fakes, and that is the *Journal of the American Medical Association*, 535 North Dearborn St., Chicago. Every little while we get a pamphlet describing the methods employed by these proprietors of nostrums to fleece the unwary. Let me urge our readers to consult the above before sending money to *any* doctor or advertising "medical institute." Every little while they come out with a pamphlet to warn the public. From the list given I have selected the two following:

> MURINE EYE REMEDY—PRICE 4 CTS.
>
> This is a nostrum sold by two eclectic physicians of Chicago. While sold for $1 an ounce, it is estimated that the stuff costs about 5 cents a gallon. The exploiters of Murine also conduct, as a side-line, a correspondence "college" of spectacle fitting—7 pages, illustrated.
>
> THE OXYDONOR AND SIMILAR FAKES.
>
> Gas-pipe therapy frauds. A description of the various worthless pieces of nickel-plated brass pipe that are sold to the gullible under the allegation that they possess curative value. Several variations of this fraud are on the market. Those dealt with in this pamphlet are the Electropoise, the Oxydonor, the Oxygenor, the Oxypathor, the Oxytonor, and the Oxybon—15 pages; illustrated.

What do you think of it, friends—a dollar an ounce for stuff that costs only five cents a gallon? The Department at Washington is carrying on investigations, and stopping the delivery of the mails of some of these parties. I notice Oxydonor is still getting money from the unwary, although it has been shown up in these pages for fully twenty years.

TEMPERANCE

DRUNKENNESS A DISEASE (?)

We clip the following from the *New Republic:*

> Drunkenness is now almost universally recognized as a disease. Institutions all over the country, both public and private, have been instituted to cure this disease.
>
> The newspapers all over the country carry advertisements of physicians and institutions who make it their business to cure this disease.
>
> Medical societies all over the world are studying methods of curing this disease.
>
> And while all this is going on, most States deliberately license saloons to spread this same disease for a share of the profit of the business.

By the way, what would you think of a man who wanted a license to spread hog cholera? That disease throughout the United States is one of the things that bring about the high cost of living, and millions of dollars are being lost because of it. Thanks to our Department of Agriculture, however, our nation is getting the upper hand of it. Well, hog cholera kills *hogs;* but the booze business kills *men*—yes, men, women, and children; and the men it does *not* kill it reduces to the *condition* of hogs, or worse still. And yet we are *licensing saloons*—yes, right in the State of Ohio. What do you think of it?

THE UNITED STATES SUPREME COURT HITS THE LIQUOR BUSINESS ANOTHER TREMENDOUS BLOW.

We clip the following from the Lansing *Daily State Journal:*

> LIQUOR'S BODY BLOW.
>
> No longer is the widow of a drunkard to remain the helpless victim of the saloonkeepers who contributed to her husband's wrecked life. The United States Supreme Court has just so decided. Nor is it necessary that the victim die an accidental or violent death. The case in which the decision was rendered

is one in which the victim was wrecked by alcoholics and finally succumbed to disease brought on or aggravated by liquors.

Under the ruling, not only is the saloonkeeper liable for damages but his bondsmen also. Undoubtedly the first result of the decision will be the filing of thousands of personal-damage suits all over the country. There will be no haggling over the law. The United States Supreme Court has settled that. It will be merely a case of proving facts.

A second result of the ruling will be bankruptcy for a number of saloonkeepers whose cupidity and avariciousness have prevented them from heeding the demands of friends and relatives not to sell to known victims of liquor. Another result of the ruling will be a decided inclination of casualty companies and individuals against going on the bonds of saloonkeepers; and without bonds, licenses cannot be secured.

The country may expect a tremendous howl from the liquor interests and the organs in their control; but the decision will stand because it is right. It is in complete harmony with that changed and changing public opinion in regard to the liquor business. More and more the public is coming to look on liquor-selling as a form of slavery the victims of which are as much deprived of their manhood's rights to life, liberty, and the pursuit of happiness as ever was a black man, and public opinion is set against it as it was against slavery. The courts are responding to the changing public opinion. The liquor interests will not be able to change the law until they change the tide of public opinion.

“PROHIBITION DOESN'T PROHIBIT.”

We clip the item below from *Farm and Fireside:*

> ### SMILING THROUGH TEARS IN KANSAS.
>
> 87 counties without any insane.
> 54 counties without any feeble-minded.
> 96 counties without any inebriates.
> 38 counties without any poor-houses.
> 53 counties without any prisoners in jail.
> 65 counties without a representative in the State penitentiary.

With the above staring us in the face, how can any man (or woman) vote for the retention of the liquor-traffic? Think of it—*65 counties* without a “representative” in the penitentiary.

SOMETHING FURTHER IN REGARD TO KANSAS.

From an address delivered before Congress by Ernest H. Cherrington, Dec. 10, 1913, we clip the following:

> ### EFFECT OF PROHIBITION ON CRIME, PAUPERISM, AND INSANITY.
>
> The Supreme Court of the United States is authority for the declaration that “the statistics of every State show a greater amount of crime and misery attributable to the use of ardent spirits obtained at these retail liquor saloons than to any other source.”
>
> No State of the Union has given prohibition so fair a trial as has Kansas. To-day that State presents the unparalleled record of almost two-thirds of its counties without a single prisoner serving sentence for crime, while in some of the counties a jury to try a criminal case has not been called in ten years.

Never mind, friends, if I have harped on this matter several times before. What does it mean when it can be truthfully said that *two-thirds of the counties* are without a single prisoner serving a sentence for crime, and that in some counties a jury to try a criminal case has not been tried in *ten years?* What *is* the matter with the people of the United States that they should continue to “vote wet” when such facts as these are before them?

EDISON ON CIGARETTES, ETC.

One of our good friends sends us a clipping from the Detroit *Free Press.* It seems that Edison posted a notice on his factory in West Orange, N. J., reading, “Cigarettes not tolerated. They dull the brain.” It seems that Henry Ford, the great automobile man, indorsed Edison. This aroused the ire of Percival F. Hill, President of the American Tobacco Co., and he makes a feeble attempt to defend the use of cigarettes. After reading his defense it occurs to us that *the money* that comes out of it is what they are after. We extract the following, taken from the Detroit *Free Press:*

> “Inasumch as millions of men use cigarettes, and perhaps even a larger percentage are educated people, the charge of feeble-mindedness lies against an overwhelming proportion of the commercial, professional, artistic, musical, and industrial world,” continued Mr. Hill.
>
> ### TREMENDOUS INCREASE IN 13 YEARS.
>
> Mr. Hill gave figures showing that 15,812,092,000 cigarettes were made in the United States in 1913, against 2,600,000,000 in 1900, or an increase of 700 per cent in 13 years.
>
> Mr. Hill said further that Mr. Edison should prove his assertion, in justice to millions of intelligent cigarette smokers, or give the manufacturers an opportunity to disprove it.

Our good friend A. N. Clark, of Lansing, Mich., who sends the clipping, comments as follows:

> This defense of the cigarette by President Hill not only demonstrates the weakness of the defense, but indicates the moral make-up of a character so typical among modern trust officials.
>
> Lansing, Mich., May 18. A. N. CLARK.

BRYAN IN REGARD TO WOMAN SUFFRAGE.

In speaking of the women's victory in stopping the Colorado war, Mr. W. J. Bryan uttered the following, which we clip from the *Woman's Journal* for May 23:

> “The battle is already won in ten States and in Alaska. Four more will come in line next November. The Eastern States are beginning to line up. The women of America are going to vote soon. No party question will prevent them; no color line will stop them; no States rights issue will deter them. No State has any right to deny to half its citizens the right to share in government by the exercise of suffrage anywhere under the American flag. As citizens of the great American Republic, as members of the American family, and as units of the great American home, we will not permit such a travesty on democracy to exist any longer in this land of equal opportunity.”

Amen to the above!

JUL 6

Gleanings in Bee Culture

VOL. XLII. JULY 1, 1914, NO. 13.

Gleanings in Bee Culture
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The A. I Root Company
Medina, Ohio

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio.
H. H. Root, Assistant Editor E. R. Root, Editor A. L. Boyden, Advertising Manager
A. I. Root, Editor Home Department J. T. Calvert, Business Manager
Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLII. JULY 1, 1914 NO. 13

EDITORIALS

The reader's attention is directed particularly to the editorial on the net-weight law as it relates to comb honey. See page 487 of this issue.

The Golden or so-called Five-banded Bees

It is refreshing to note that those who advertise golden Italians are more conservative in their advertisements. The time was when five-banders were advertised, but only three and four banders were sent out. The beekeeping fraternity has learned that a strictly five-banded queen is a rare bird. It was folly to advertise them when they could not be furnished.

Our Front Cover Design

This shows a small section of our Apalachicola apiary, with one of the workshops in the background, some three or four weeks before the first car shipment was made. In the mean time these two-story colonies were increased to three stories, and in some instances up to four; then when the carload shipments began to move, the colonies were split up into one-story sections, each one being supplied with a queen.

The view shows a convenient arrangement for hives and the nice board walk that runs down in between; but it does not show very clearly that these walks and hives were some five or six feet above the ground, as heretofore explained, in order to escape high water.

Postponement of the Date when the New Ruling Regarding the Guarantee Clause on Pure-food Packages Shall Become Effective

We have just received notice from the United States Department of Agriculture that the ruling with regard to the elimination of the guarantee clause on food packages will be effective May 1, 1916, instead of May 1, 1915, as first announced. It would appear that the manufacturers of food products found that it would be practically impossible to dispose of their goods by May 1, 1915, and asked for a postponement of one year more. Full particulars regarding this are given in our issue for June 1, page 401. It should be clearly understood, however, that this has nothing to do with the operation of the net-weight law given on page 487. There is as much or more reason why there should be a postponement on this.

Limitations of Parcel Post

Some of the dealers in beekeepers' supplies have received numerous complaints from their customers because their goods were sent by express rather than by parcel post. The fact is, all should remember that a limit of 50 lbs. is for local delivery or no further than the 150-mile zone; and 20 lbs. is the limit for all distances of 300 miles and over. Again, it should be understood that many things can be sent cheaper by express than by mail. If you will leave the matter with your dealer he will select parcel post, express, or freight according to conditions. It sometimes happens that the cost on express packages will be so great that he will send by freight, and of course that means delay.

This has been an extraordinary year for supplies. The call for goods to go by parcel post has been enormous; and while no doubt that means of delivery has been a great boon to the public at large, there are many times when express will be cheaper.

Methods of Imbedding Wires in Foundation

Years ago A. I. Root imbedded wires with a hot point drawn along each wire, with just enough pressure to sink the wire half-way through the foundation. Since reading Arthur C. Miller's article, p. 495, we have been trying the plan again, comparing it to the plan illustrated on page

801, Nov. 15, for last year. The hot iron really does very nice work; but on account of the greater danger of missing the wire or running off and melting a hole in the foundation, and also because of the necessity for having all conditions just about perfect for good results, we still prefer the wide-toothed imbedding-wheel. This tool, as explained, is altogether different from the old tracing-wheel imbedder. It may be used hot or cold; but when hot it leaves a little bridge of melted wax across the wire at each point where a tooth strikes, which bridge is about ¼ inch long, or as long as the tooth is wide. The wire is not heated, and the imbedding is done by pressure in the usual way, although the tiny "bridge" of surplus wax from each tooth as it strikes holds it securely so that it can not move.

We are not particularly in love with the groove-and-wedge plan of fastening the foundation to the top-bar. However, since we happened to be fitting up a lot of frames we took occasion to time the operation. Time after time, we picked up a frame, dropped the foundation in the groove, put the wedge in the other groove, and sank it down below the surface, and imbedded the wires with the hot gear imbedder all in 30 seconds. We cannot average two frames a minute, however, and we judge that Mr. Miller does not intend to convey the idea that that is *his* average speed.

Field-day Meet at Medina, July 9, 10

In addition to what was said in our last issue concerning the field day at Medina July 9, 10, under the auspices of the Ohio State Beekeepers' Association, we may add that plans are well under way for a good meet here. President Matheny sends the following provisional program for the evening of the 9th:

Report of Chief Inspector of Apiaries..	N. E. Shaw
Beekeeping in the early days...........	A. I. Root
The Inspector's point of view..........	E. R. King
Fads and Fancies......................	E. R. Root
The honey crop..................	Fred Leininger

During the afternoon of the 9th and the forenoon and afternoon of the 10th, there will be field-day demonstrations. On the 10th we shall make a demonstration with power extracting machinery, all of the latest pattern. Ample facilities will be afforded seeing each step in the whole process.

Our men who devote their time to queen-rearing will give demonstrations in grafting cells, and, in general, the entire process of rearing queens from start to finish; and in order that all may see, we will have different demonstrators in the field.

We regret that it will be impossible for either Dr. Miller or Mr. Doolittle to be here. Sickness in Mr. Doolittle's family, and the extreme age (83) of Dr. Miller, render it practically impossible for either of them to be with us; but fortunately one of the Dadants of Dadant & Sons will be here.

A. I. Root will relate some of his early experiences in beekeeping, about his ups and downs, of his acquaintance with Rev. L. L. Langstroth and other prominent beekeepers of the early days.

LODGING AND BOARD.

As Medina is not a large town, our hotels and restaurants will be taxed to their utmost limits to take care of the crowd. It is absolutely necessary, in order to secure lodging and meals, that those who expect to attend send in their names in order to secure accommodations. We may have to put up cots in our warehouse; and the probabilities are we shall have to get some church organization to feed the overflow who can not be accommodated at the hotels and restaurants. Meals at the American House will be 50 cents; at restaurants, 35 cents; and the ladies of the church will probably charge the same amount. The probabilities are that any ladies who come can be accommodated in our homes on the nights of the 9th and 10th.

Unless each one of you who expects to attend this field meet sends in his name in advance he may not be able to secure lodgings and meals. If you are not sure you can come, but yet expect to, send in your name anyhow. All such letters should be sent to E. R. Root, at Medina, who is looking after accommodations.

1914 Honey Prospects; Clover Crop Not Promising; Prices

The prospects for a clover crop are not promising. The excessively hot and dry weather during the fore part of June, followed by cold weather and no rain in many localities put a decided check on clover. In some cases it seemed to be parched out and gone to seed; but recent rains (which have been general over the north-central portions of the United States) may change the situation where they were not too late.

To be more specific, the clover crop is not going to be a failure by any means. While it will probably be just that in some localities, there will be from fair to good yields in others; the reports from Michigan are from good to bad; but most of the reports we have read thus far indicate either a short crop or an entire failure. Two of the largest producers of Ontario expect a short crop.

It is too early yet, however, to get definite statements, as the reports up to date are few and scattering; but in our own locality it looks now as if we are to get no clover—hardly enough to fill up the hives; but we have just had (June 23) some very heavy soaking rains, and we hope the bees will get enough to fill their combs. But even at best we do not expect to get an extracting from clover.

Basswood never looked better; the prospect of honey from that source seems to be good all over the country where basswood grows. One or two fear that the seventeen-year locusts will do some damage; but this damage will probably be only minor. But, unfortunately, the basswoods have been pretty well cut off; and even if they do give their nectar splendidly, the aggregate will not be large.

In spite of discouraging prospects we do not know when we have had a year when there has been such a heavy demand for supplies. The factories have been running overtime. There must be some prospects of a honey crop or there would not be such a call for goods. The next issue will tell the story.

The prospects for alfalfa honey, both comb and extracted, are very good except in the immediately vicinity of Denver, Col., where the bees appear to have been killed by smelter smoke. Reports regarding the yield from mountain sage are somewhat hazy; but it is our opinion there will be considerable mountain sage this year, and some orange blossom. Texas appears to have had a very fair crop; but as it consumes its own product largely, it will not have very much influence on the market.

PRICES FOR 1914.

A couple of weeks ago, producers and buyers were undecided where prices would go. The large amount of honey left over from last year created a feeling of uncertainty in the face of a promising yield from clover in the Eastern States; but as the yield from that source will probably be light—nothing like what it was last year—it would appear that prices ought to be firm, with a possible tendency upward. At all events, we would not advise those who have large amounts of last year's extracted to unload at low prices.

In the mean time we solicit reports from honey-buyers and producers generally; but be sure to make your reports brief.

Later.—Telegrams since the foregoing was written are as follows:

> Clover prospects in this locality indicate a big crop. Weather is cold and rainy.
>
> St. Paul, Minn., June 23. THE A. I. ROOT CO.

Late Rains Starting the Honey-flow Again

Later.—Since writing the foregoing it is apparent that the heavy soaking rains have started up the clovers again. Before these rains fell, and for a day or two afterward there was nothing doing in our yards, and the bees got to robbing; but we are now (June 24) having hot muggy weather, and the ground, thoroughly soaked, is pushing up the belated clovers that are yielding nectar. The boys are now rushing on the supers.

Reports from over the country show that the rains are quite general in the clover belt, and these have boosted the prospects for clover. If these same rains had come a week or ten days earlier, there would have been a big crop of clover, without doubt. As it is, there will probably be from a light to a fair crop. In any case the yield can hardly be as heavy as last year.

We shall probably secure enough honey to make a demonstration with power extracting machinery on the field-day meet at Medina, July 9 and 10.

The Net-weight Law so far as it Applies to Comb Honey

A FLOOD of inquiries have been coming in, asking for some more specific information than was given on page 385 of our issue for June 15. We were not able at the time to cover all the points. We are now informed that the net weight on a section of honey means the net weight of the contents in the section exclusive of the wood part—that is to say, if a box of comb honey, including the wood, weighs 13½ ounces we must subtract one ounce and mark the section 12½ ounces net weight, as the wood part of the section weighs approximately one ounce. If the Government insists on this ruling it will mean, other things being equal, that producers and honey merchants will have to charge more, and that a large number of others will be innocent violaters of the law.

The actual tendency of the net-weight law will be to reduce prices, as it may be difficult to increase the price on a 12½-ounce section to a 13½-ounce price.

As the net-weight law is construed to mean that only the actual weight of the honey in the section is to be considered, then, naturally enough, the glass in glassed sections cannot be weighed in with the honey. Heretofore the section itself and two sheets of glass have been included and sold at the same price as the honey itself. There is nothing morally wrong in this, because if the fancy trade requires honey in that form

—something that will stand rough usage, and which will be free from the depredations of robber bees, flies, ants, and other insects, then such trade should pay for the extra cost of so protecting the honey. But apparently, under the new law, only the net weight of the honey exclusive of the glass and the wood can be considered. As the glass is more variable in weight—more so than the section itself—it will be a little difficult to get at the actual net weight of honey already glassed. Producers who have a trade in glassed comb honey can sell it, but they must weigh up the sections *before glassing,* deduct one ounce for the wood, and mark the net weight on the section, whatever that is—10 or 15 ounces, and then put on the glass; but they can charge only for the honey itself. The practical operation of the law will be to exclude glassed honey from the market, in our opinion, unless the government reverses its decision on the net-weight proposition as it relates to comb honey.

It will be well to bear in mind that the net-weight law goes into effect Sept. 3 of this year. The law was passed March 3, 1913, and gave the producer and dealer eighteen months in which to dispose of all old stock; but the decision to exclude the weight of the section has only just been announced (May 28). As many beekeepers were honestly of the opinion that they could include the weight of the section they sold, a large amount of honey on the market will necesarily be misbranded. Just what the Government will do in cases of this kind is hard to say. This may work a more severe hardship on the large producers and dealers than on the smaller ones.

As soon as we can get a more definite statement we will place the same before our readers. But Mr. Frank Rauchfuss, of the Colorado Honey-producers' Association, wrote to Washington and received a night-letter telegram as follows:

> Regarding branding honey in frames or cartons, weight of actual contents should be marked upon frames of individual units, or upon outside of cartons when used. Regulations, paragraph H, minimum weight blank ounces, is suggested as convenient. Form letter follows.
>
> C. L. ALSBERG.

From the letter following, Mr. Alsberg makes this statement:

> "We note the custom of your association, and in that connection your attention is particularly called to paragraph H as suggesting a convenient method of branding which will meet your conditions. The statement of weight, however, should be that of the contents, *exclusive of the wooden frame.*"

This leaves no room for doubt; and it is apparent that dealers and producers alike will have to modify their entire scheme of selling comb honey.

In this connection it is apparent that the net weight of a case of comb honey must be the added-up weight of every section in the case less as many ounces as there are sections in the case. All together it is apparent that the price of comb honey, if sold at the figures of a year ago, other things being equal, should be advanced in order to cover this shrinkage. If comb honey is much scarcer than last year, another advance will have to be made. Of course that advance would have nothing to do with the net-weight law.

Another question has been asked; and that is, whether the ordinary 60-lb. square cans, kegs, or barrels shall be marked with their net weight. As we understand it, the new net-weight law applies only to small packages—packages that go to the consumer, and not to the large containers that are sold in a wholesale or jobbing way to dealers. Honey, however, in square cans varies somewhat in weight. The variation as we find it runs all the way from 56 to 61 lbs. Then, again, there will be a shrinkage on account of evaporation. Some of the honey, perhaps, was extracted a little too thin. The dealer fears that it will sour on his hands, and will remove the caps of the square cans until the honey evaporates down a little.

To be on the safe side, it will be better, in our opinion, to mark every can, keg, or barrel, with the exact net weight of the honey. The ordinary square cans will have an actual weight of about 2½ lbs. But kegs and barrels will vary so much that each barrel and keg will have to be weighed separately.

We have taken this matter up with Dr. E. F. Phillips, of the Bureau of Entomology, suggesting that he explain to the committee of the pure-food department some of the difficulties that producers are going to meet under the operations of this new law providing that only the wax and honey are considered, and providing that it goes into effect in September of this year.

In conclusion, we should say that we enter no complaint at the general intent of the law, which we believe to be thoroughly good. All we ask is that the Government, in view of its decision of May 28, give beekeepers' associations and dealers an opportunity to dispose of their old stock before the law becomes effective. If the action of the law could be deferred until September, 1915, instead of September of this year it would work no hardship on any one. Of course it will occasion some inconvenience; but in the end we shall all be able to readjust ourselves.

Dr. C. C. Miller STRAY STRAWS **Marengo, Ill.**

Half-inch bottom-starters are mentioned, p. 327. As the bottom-starter is my baby, I'm anxious it should have the best chance, and would advise against any thing less than ⅝, no matter what the size of the upper starter. The half-inch starter is harder to put in, and the bees are more inclined to tear it down if a dearth occurs.

"The wave-like motion of the intestines, says Dr. Lorand, is primarily mechanical, and peristalsis can not continue unless there is some bulk of food on which it can take effect. Hence follows the singular result that if we eat only the food that we ought to eat, that solely essential to nutrition, we should be worse off than if we ate a great deal of material that has no nutritive qualities whatever." This, from a medical journal, is commended to those who are worried about eating comb honey because wax is indigestible. Fact is, if we would be well we must eat a lot of indigestible food, and wax works wonderfully well. [The story is told of a ship captain who ran out of hay for horses on his boat; but he had plenty of oats. But in spite of this concentrated food the horses kept going down. He then instructed his ship carpenters to take their planes and plane up some of the plank he had. The shavings were then mixed with the oats, when the horses began to build up. Planed shavings are indigestible, but in this case they accomplished the object sought.—Ed.]

A. I. Root, p. 477, you say there are 12 kinds of Presbyterians. Yes, nearly as bad as the "57 varieties" of Congregationalists. But then, Congregationalists have no synods and presbyteries to hold them level, and so there can be almost any variety under the same name. But please don't hold me responsible for all the fool things done by Presbyterians. I'm doing my little best to get them all together. But I don't believe in waiting for the 12 kinds of Presbyterians to get together before trying to have a bigger uniting. I don't believe there's any more excuse for Presbyterians and Congregationalists to keep separate than there is for the different Presbyterians. In Canada there's a movement on foot that I hope may soon end in uniting Congregationalists, Methodists, and Presbyterians. God speed the day when we'll "all be one."

P. S.—My dasheens are up.

[The time will soon come when we shall not have so many denominations. A lot of weak colonies will not begin to do as much effective work as the same numerical strength of bees combined into a few good colonies. The same principle holds true in regard to churches. Why in the world church denominations cannot get together, especially in our rural communities, we can not understand. It is a travesty on the Protestant church at large. There are hundreds of rural communities that have little struggling churches which, if combined into one, would make a power for good.—Ed.]

First bloom was seen on white clover May 27, and we began putting on supers. The rule is that the flow begins ten days after first bloom appears. But this year the bloom increased so rapidly, and was so immense in quantity, that we thought the ten days might be shortened. When the tenth day came, June 6, and not a thing doing at the hives, we began to make ready to face another year when white clover doesn't give down. June 6 it rained in the forenoon; but as soon as it cleared at noon and before it was fairly dried off, the nectar began to come in a flood, and in the ten days since then the flow has kept up whenever it was not raining. The cold has not seemed to make much difference, for it has been pretty cold. While I'm now writing this, at 11 a. m., June 16, it's 63 degrees outdoors, and—just wait a minute . . . . Just been down to the apiary where Miss Wilson is at work, and I said to her, "Well, how is it?" "Not so very well," she replied ruefully. "It's so cold that they're fearfully cross. It doesn't seem they could be doing any thing when it's so cold, but they have. I've been over sixteen colonies, and I've put on ten fresh supers, and it's only six days since they were given all the supers they needed. But, aren't they cross? Mercy!" (It's cruelty to animals to have any one work at bees at such a time, and I don't know that it ever happened exactly the same before.) An unusual combination of circumstances seemed to make it imperative that, for several days to come, the bees should be left to themselves. I said, "No need to do any thing to-day—too cold. Instead of doing that row before it's time, it can go a little over time." But with her usual persistence Miss Wilson said, "We'll take no chances; those colonies will be done to-day." And done they were, or at least they're being done. With the exception of hindrance from rain, the season seems as good as last year, *so far*. How long it will continue is another story. [We are glad that you have prospects of honey. We have none around here unless it comes from basswood.—Ed.]

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.

EXTRACTED HONEY AND THE BUSINESS BEEKEEPER.

For the business beekeeper who is a salesman, there is no doubt that extracted-honey production is the best as a money-maker. The expense for supplies is very much less, and the money received for extracted honey will equal comb-honey prices if it is put up in glass and tin packages and sold under a trade name, as are other fancy food products. The average beekeeper does not have time to look after the sales side as it should be, but there are some beemen who are proving themselvese capable of handling both.

* * *

SHALL APICULTURAL EDUCATION BE ENCOURAGED?

Mr. Hershiser writes a very interesting article on this subject, page 331, May 1. I say yes, if scientific marketing and distribution is made of equal importance with the production of honey in the course. Those who now are leaders in propaganda for apicultural education are not placing emphasis on developing and extending sane methods of distribution. They believe, or at least they act as if the proper procedure is to encourage more production, and thereby save some of the nectar going to waste, and then let the beemen hustle to get rid of the crop in a hit-or-miss manner. Science in production and demoralization in distribution! Let the beemen do their own organizing; we will teach new comers in the apicultural ranks how to compete with them in producing honey; then they can all get into the grand squabble in selling their honey. That is just what we had last year in the West, and it was a grand squabble, I can assure you. Some of our brothers have a lot of honey to carry over because they got caught at the wrong time or were not willing to cut the price low enough. I know some men who have had to hold extracted honey for three years before selling it, and borrowing money all the time to live on. Let us get busy with a little apicultural business education lest the new beekeepers be forced out by failure to make the business go.

I think it is not the right course to limit education, for to do so is useless, any way. The American people are too much in favor of more and more of it. But let us make it broader than we have so far thought possible. Those who have talked limiting education and production are taking hold of the tail instead of the horns of this proposition. The honey industry is not anywhere near the danger of overproduction that fruit-growers face. Mr. Hershiser is wrong when he says that the educational forces have not discouraged further extension of the fruit industry. The Extension Department of the Colorado Agricultural College has been doing that very thing. On the western slope of Colorado the people were specializing on fruit too strongly, and the Extension Department has been trying to bring in more diversified farming operations, pointing out that we could not profitably compete with eastern orchards if more acreage were planted. I do not think that the advice has been as effective as the actual conditions faced have been. I have seen more orchards pulled up than set out in the last few months.

Mr. Hershiser says the unschooled, untutored owner of bees is the menace. True; but he is not *the* menace in the West. The menace in the West is one hundred or a thousand alert intelligent specialists all trying to sell their year's production in sixty days and get their money for it so they can stop some of their loans at ten and fifteen per cent. Some means must be devised to advance twenty-five to fifty per cent of the value of the honey to the producer at once, and then let the honey be held until it can be distributed and sold in the unsupplied markets. At least seventy-five per cent of the bees in Colorado are owned by men who run them as a business proposition, and produce a commercial article of honey. This, I believe, is true of the other Inter-mountain States.

I was told several times by Kansas City grocers that they could sell three times as much comb honey at 15 cents as they could at 20 cents. When comb honey retails in Kansas City at 15 cents what will the producer in Colorado, Utah, or Idaho get? He got this past year \$1.75 to \$2.00 a case for 24 sections of well-packed honey. His shipping-case cost him 19 to 25 cents each, and his sections \$5.00 to \$6.00 per 1000, and other supplies in proportion. If he borrowed money it cost him ten to fifteen per cent. Comb honey has been retailing in Boulder for some months at 10 to 12½ cents for beautiful, clear, heavy-weight honey. Some of the grocers lost money on it. These prices are getting down close to the actual cost of production, and some honey has undoubtedly been sold below it. Let us get together and have some education to change these conditions.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

I have some samples of honey from the first cases extracted that are surely fine—so white that you can see letters through a glass of it, and so thick it can almost be tied in a knot.

* * *

The State asylum at Patton is said to be full of beekeepers, most of whom are suffering with fog on the brain. Attending physicians say all will recover with the advent of clear warm weather.

* * *

June 7 was one of the coldest, most cloudy, and disagreeable days of the season. A coal fire was burning all day at my home, and really was a comfort. Late in the day heavy showers fell, and a general clearing-up followed, since which time we have had beautiful warm days.

* * *

E. J. Atchley, in the *Western Honey Bee*, thinks neither good queens nor drones can be raised out of season; yet I made big money from those raised and introduced in October last year, while those introduced in April and May failed me to a great extent in the midst of the heaviest part of the present season. It is more profitable to introduce queens in late summer and autumn than at any other time, for they as a rule give a good account of themselves the following spring.

* * *

A poor queen can not always be judged by the amount of bees in her colony. I have known this rule to be used, but it is not infallible. Recently I had a very small colony whose queen to all appearances was first class. To test her I exchanged stands with a very strong colony. In six days she had increased her brood space more than ten times the original amount. I was so pleased with the outcome of this trial that I have tried it on others, saving several fine layers that I might otherwise have destroyed. A weak colony at the end of a long honey dearth is not necessarily a sign of a poor queen.

* * *

Will the specialist beekeeper ever again suffer severe winter losses? asks the headline in one of J. L. Byer's notes on page 326, May 1, to which I venture the answer, "yes." When the beekeeper thinks he has about mastered the business of making a perfect score along this line, he will some time see that he has missed the mark about 50 per cent, for no apparent cause other than the shifting of conditions in nature's plan to a point that had never before been encountered. To-day there are many beekeepers in our Southland, long since classed as professionals, who have only half the number of colonies they had early last season, in some instances a fourth. This is not because they are not specialists, but because they met problems they were not able to solve in time to prevent heavy loss. These problems were hard to foresee.

* * *

Mr. Editor, do you not believe it is a matter of education more than the flavor of honey that guides the consumer to the kind of honey he purchases? My second daughter will not touch comb honey, because she has eaten only extracted. She says comb honey is not good. A neighbor of mine thinks that only buckwheat honey from New York is good to eat. Another wants his honey candied hard so he can cut the top out of the can and serve it butter style. There are hundreds, and I might say thousands, of people in this State who, in speaking of honey, think only of the extracted product. In the East I once undertook selling extracted honey in my local market, but failed, because people were not used to it and thought it was squeezed through a cloth or tramped out by foot power—that it must of necessity have sugar in it or it would not candy.

* * *

I have read from time to time of many peculiar cases of bee-sting poisoning; but the one that has come nearest home, and was the most peculiar I have ever seen, happened last week. My wife is very susceptible to the poison of the sting of a bee, and last week she was stung on the thumb between the nail and the first knuckle joint. In a few minutes she began to cough violently, which continued until she was exhausted. All day at intervals the coughing spells would continue. But the most peculiar feature of the incident was that in thirty minutes her eye was swollen almost shut, although the direct swelling from the sting reached only a short distance above the wrist. There was a red line about half an inch wide traveled from the sting up the arm, over the shoulder, the neck and face, and the swelling of the eye began with the result mentioned.

J. L. Byer, NOTES FROM CANADA Mt. Joy, Ont.

Reports from those fortunate enough to visit friend Sibbald's apiary on the 25th of May at the big field meet say that all had a good time. While not there myself, I feel quite sure that a pleasant and profitable time would be spent by all present. We started across country—a trip of over 50 miles from our place, and when half way there a heavy rain kept us at a friend's home for half a day. As we still had 25 miles ahead of us with heavy hills and some clay roads, we thought better to turn back home again.

* * *

On page 432, June 1, Mr. Buchanan, of Tennessee, in giving a list of plants visited by the bees in his State, credits dandelion with nectar secretion alone. With us it is a great pollen-yielder, and of late years I am inclined to think that not so much nectar comes from the plant as I formerly believed. Willows yield most of the nectar at that season, the dandelion giving enough to impart the flavor peculiar to that plant.

He also mentions the aster as yielding a honey that granulates readily and makes good winter stores for the bees. This is likely down in Tennessee, but aster honey left in the brood-nests in the fall in northern locations too often spells death to the colony for many beekeepers to take a chance to winter their bees on this kind of stores.

* * *

In the Feb. 15th issue Dr. Miller says that our hotels have not yet got to the point of advertising for honey, as is the case in Switzerland. He is right, and more's the pity. Our hotel men seem to be very loath to serve honey on their tables. Of course, there are exceptions to this, but it is the rule just the same. They will tell you it is a "mussy" thing to serve; and if one watches people not used to eating honey, but *trying to eat* it for the first time, surely we shall have to agree with the hotel men. I was reared on the farm in a community where nearly all the people were of German descent. On the tables, abundance of good food was always in evidence; but the rule in most homes was that all "help themselves." Our home was no exception to this, and often can I remember the looks of mortification on the faces of the many city visitors that used to come to our place when they would try to take a spoonful of good ripe honey from the large dish that would be passed around the table. A spoonful would be dipped out and held for a while with an uncertainty as to what to do. A sudden movement would be made toward the dessert-dish, and a long trail of honey would be on the table-cloth between the starting-point and final destination. Possibly we need to do some educational work along the lines of telling people how to handle honey if we ever expect to see it served regularly on the tables of our hotels.

* * *

I feel pretty sure that the estimate placed on the value of full-drawn combs for the production of extracted honey is in no way exaggerated, page 330, May 1, and yet how are we to explain the fact that some of our best comb-honey producers claim that they can produce nearly if not quite as much comb honey as they can extracted? Mind you, I am not saying that this is a possibility; but I know some good producers of comb honey who make the claim, and their results seem to prove they are not far from right. In their case the bees have to draw out all the foundation and work in crowded quarters at that. But I feel pretty sure that the majority of producers with a full set of drawn combs will produce at least twice as much extracted as comb honey, especially if the season is none too good a one.

* * *

Mr. Hershiser's article on page 331, May 1, is interesting, and much of it conclusive. His writings generally are of that class. However, I do not agree with him in all he says; but for want of space in this department it would be unwise for me to try to take issue with him. And just here I might remark that the writer of these notes is no doubt referred to in a veiled manner by friend Hershiser when he speaks of the "two classes of beekeepers." No doubt Mr. H. will smile when he sees this, and say, "If the shoe fits, put it on," and I hasten to assure him that I gladly do so, and, more than that, there is no "pinch" noticed at all, for it slips on comfortably. Why? Just because I happen to know that I am in mighty good company, as evidenced by the scores of unsolicited letters from the best-known and most representative beekeepers all over the United States and Canada, endorsing the position I have taken in a certain journal devoted to the beekeeping interests.

In connection with this subject of the value of schools and other educational means of helping beekeepers, please notice that not once have I combated *any* real work along that line! but I have and still do oppose certain methods of booming and often misrepresenting the possibilities of the industry as has been done in the past. This position is a lawful one for any person to take, and he would indeed be a hypocrite, to say the least, if he thought one way and expressed himself publicly in another manner.

Regarding the matter of overstocking, the editor says, page 333, May 1, that he happens to know that the apicultural student at college has it pounded into him that it is foolish to locate his apiary near one already established. This is no criticism of the above statement, for I would expect such teaching to be given. However, many have no hesitation in doing this very thing, no matter how much " pounding " has been done to the contrary. But just here let me whisper, that beginners are not always the only transgressors in this respect, for I have known old beekeepers to go and do this very thing; and unless there is some great big and worthy excuse for such a move, the least that can be said in defense of the practice is that "it is hardly commendable."

* * *

DISTANT PASTURES ALWAYS LOOK GREEN.

The above is an old and true saying. I am reminded of this when I often see people thinking that almost every location is better than their own. In some seasons I have been tempted to think that myself. Two years ago I ran across what I thought was one of the greatest clover locations in Ontario, judging by the looks of the country at the time, and by the past records as told to me by people living there. As a result of these impressions I established a large apiary in that location, since for a few years previous crops had been slim in our home location. Well, as a sequel to this move I might say that in this choice location for the two years since we moved there, the greatest drouth in the history of that section has practically killed all the clover. Last year we had a heavy crop in our old locations; and if all the bees moved up north had been near home, results in dollars would have run up to quite a tidy sum over and above the receipts of the apiary where it is now situated. Now, I believe the good seasons will again return to that section, and we intend to stay there with the bees, and wait for a while at least. None of the bees were taken from the home locations in starting this outapiary, and the moral I have in view in giving this little experience is to warn the man with but a single apiary not to be in a hurry in rushing into a another location simply because for one year said location does better than where he is situated. Moving bees and starting outyards at a distance costs money and a lot of work; and after one has gone to all this sacrifice, and then in the end learns that he has left a better location than the one into which he has moved, he is apt to think that experience, even if a good teacher, is sometimes a mighty expensive one as well.

* * *

SEASON PROSPECTS TO DATE.

Weather conditions since my last writing have changed but little, and to-day, June 11, our section of the country is very dry, and the little clover we have is short and stunted, just coming into bloom nicely. Unless something out of the ordinary should occur, we certainly cannot look for much clover in our locality this year. I have just returned from the apiary 100 miles north of my home, and there the conditions are still worse, scarcely any rain having fallen this spring. I understand that conditions are better in western Ontario, as the drouth was not so severe there last season as with us, and this spring they have had numerous showers. Taking conditions in general for the Province, I predict a light yield of clover honey; but then, one never knows for sure, as occasionally something we do not look for occurs in beekeeping, even in so far as our expectations are concerned, as has been proven over and over to all who have been in the game for any length of time.

Very little honey was gathered from the early willows this year, as the season was generally cool. But when the large yellow willows and the sugar maple came into bloom we had five very warm moist days, and how the nectar did come in! The maples broke all previous records in our locality, and brood-nests were jammed with honey and pollen. Fruit-bloom lasted but a few days, and yielded little, so the rush referred to was a splendid thing for the bees.

Never before have I had so much honey in the brood-nests at this time of the year; and as it is impossible to get it all into brood before clover comes on, I should not be surprised if more or less of this honey got hoisted above into supers if we happen to get a flow from clover. Although we have had a drouth of nectar for ten days since fruit-bloom, yet all colonies are heavy with new and old honey, many of them having considerable in the supers. Of course, this means that the bees are ready for any thing that comes along in the shape of a honey-flow, and this is the one bright spot in present prospects.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

SOMETHING BETTER THAN FINANCE IN BEEKEEPING.

"Why don't you old fellows like Dr. Miller, J. E. Crane, and yourself tell us something of the financial success of your forty to fifty years of beekeeping? I am thinking of going into beekeeping; but unless there is money in the venture, I do not care for the undertaking. How much have you laid aside from the bees since the year 1869, the year you embarked in apiculture?"

Well, before saying any thing regarding the thing our correspondent wants to know, allow me to say that my advice to the man who has no ideas regarding beekeeping other than the "money there is in the venture," is, "keep out of the bee business." In fact, the person who can see nothing but the money there is in any venture will have a hard time passing through the world. I remember hiring a man to work for me when I was on the old farm, before I commenced to keep bees, who was continually looking at the sun to see how soon it would be quitting time for the day; and the later he worked the more he would lean on his hoe, and the more tired he would become, all the time proclaiming that he did not believe there was any money in a corn crop. This man wanted big wages, and was not working for any thing but just his wages. Today he has little if any more than he had fifty years ago.

Another time I hired a man by the month, and this man could see fun in every thing I set him at. He was up early in the morning, and would whistle and sing while he turned off one job after another. He would hoe one row after another of corn, telling me at noon or night how nice it grew, and what a nice green color the leaves were taking on, surprising me by the eagerness he manifested in doing a good job, and keeping ahead of the work we had to do. We had a long job of laying over an old rail fence which we used as "knitting" work when nothing else was pressing. At noon, on the last day before his time was out, it commenced to rain slowly, making every thing outside wet and disagreeable. After dinner he asked me what he was to go at for his last half day with me. I told him to sit down and read a while, and when he felt like it to pack up his things, and later on I would carry him home. He said, "There is that old rail fence we did not finish. I'll go at that." I told him that, of all the worst things that could be done on a rainy day, the laying-over of an old rail fence was the worst, and that he was to do only as I had told him. After a little I missed him; and on going to the door overlooking the old fence, there he was with on old coat on laying over the fence, whistling and singing away in the rain. He came in half an hour before it was time for me to take him home, saying that I would not have to lay over any more old fence, for it was all finished. This man has to-day a fine place all paid for, with money in the bank, and has held many offices of public trust in the community in which he located.

Now a word or two about the money there is in beekeeping. No man can ever become a Rockefeller or a Morgan through beekeeping; but he can make a comfortable living for himself and his family, secure a good home in which to live, and lay aside something to carry him through his old age so that he need not worry about "over the hills to the poorhouse." But this is only a small part of apiculture (big fortunes made in any business tend to make a man sordid and morose, taking all the pleasure and poetry out of life. He can see only business all the day, and dream of it at night). Besides a comfortable living, a good home, and something laid aside for old age, there is in apiculture something which money cannot buy. The merry hum of the bees cheers the heart, the green fields and leafy boughs make the eyes shine with brightness; the song of the bobolink, robin, and oriole brings music to the soul, while the growing combs of honey sparkling in the sections, or being capped with snowy whiteness, whet the appetite with the keenest relish.

Say, Mr. Correspondent, I would not exchange all these pleasures which have come to me through my apicultural life since March 1, 1869, for the fortune of a Morgan or a Rockefeller. The beekeeper who has first sought the kingdom of heaven and its righteousness has a right to be the happiest man or woman on earth; and if he is not thus happy it is because he does not reach out his hands and take what is offered by his heavenly Father. In my opinion no rural pursuit is the equal of apiculture for pleasure and independence; and it compares favorably with the rest for profit if it is rightly managed. In no year have I ever failed to realize a good profit on the labor and capital invested. But to give just the figures seems too cold and calculating when I look at the pleasure side.

GENERAL CORRESPONDENCE

GOOD COMBS; THEIR VALUE, AND HOW TO PRODUCE THEM

Third Paper

BY ARTHUR C. MILLER

The second paper on this subject dealt with the proper wiring of the frames, giving a method which produces square frames and tight wires free from stretch under service conditions. They are ready for the foundation, and we must decide what grade to use.

I use the lightest "brood" foundation I can buy. With the paper, a pound contains eleven to twelve sheets 7⅞ by 16¾ inches. Any thing smaller than this is used at a loss. The frames I use have an inch-thick top-bar *without* grooves, ⅜ inch thick end-bars, and ¼-inch-thick bottom-bar, and the above-dimensioned sheets are just right for them. I should prefer sheets a scant ⅛ inch longer, if I could be sure of accurate cutting; but as I cannot, I use those of dimensions given.

I have gotten over bewailing small variations in dimensions; but I insist on having sheets with *straight* edges, and cut *square.* Once you run up against a lot that are not right in those particulars, and you will appreciate my attitude. It is almost unusable; and, even if used, will take so much time and give such unsatisfactory results that you will never accept another lot like it.

As to the weight, I use the extremely light for economy. In 100-pound lots I get it at an average price of 60 cents per pound, which is about five cents a sheet, which for the 9½ sheets I use in a hive costs 47½ cents. "Medium brood" foundation costs in same quantities about 56 cents for 7¼ sheets, or 8 cents a sheet, which, for 9½ sheets is 76 cents. Light brood costs 6½ cents a sheet, or 58 cents a hive. It is not difficult to see that the highest-priced foundation is the cheapest, *provided* you know how to use it.

I frankly confess that it takes more skill or deftness to work with the extra light than with the others; but as soon as the skill is acquired it works as easily as the others, and the economy is worth all the trouble of acquiring the skill.

For a time I was inclined to want my foundation without paper between the sheets, also for economy, because there are several pounds of paper in a few hundred pounds of foundation; but I soon discoverd that the paper was worth all it cost me. (As I recall it now, it adds about one cent a pound to the cost of the foundation.)

The implements I use are few and simple, and can be bought in any village for a very small sum. The only exception is the board on which to lay the foundation and frame while fastening, etc., and that is easily made. It is in length almost the inside length of the frame—just enough shorter to permit the frame to slip on and off easily. In width it is about one-eighth inch narrower than the inside depth of the frame, and in one edge are driven two brass-headed upholstery nails (these taper, and the frame will not catch on them), so that, when a frame is put on the board, the heads of these nails just rub against the frame. The top-bar is always put against this edge. This board is fastened to two cleats, and when in use it is screwed or clamped firmly to bench or table. This is not necessary, but will be found to facilitate the work. Preferably the bottom-bar is toward the operator, and light should be at one side or come over and behind the operator's head. I like to have the board slope toward the top-bar edge, and do this by wedging up the edge nearest me about one inch.

The other implements, two dishes for wax and the tools shown in view No. 1, consist of a small soldering-iron and two brushes. The soldering-iron is for bedding the wires, and is filed down quite thin at the end one way, and into an arc the other way. Over the edge of this arc is filed a groove just deep enough so it will run on a wire and not slip off, and *no deeper.* Then it is tinned, because the hot wax turns the copper green, and I do not care for the green copper on my foundation and in my combs. It may be so slight as to be harmless; but as I can avoid it I do. Such an "iron" can be purchased for about 25 cents.

The large brush is for "painting" the foundation with wax, and the small one is for fastening the foundation to the frame. It costs 10 cents, and is as far superior to the "wax-tube" and "wax-spoon" as a movable-comb hive is to a log "gum." I tried all shapes and sizes, and all lengths of bristles, and find the one illustrated the best. It is a common marking-brush, such as is used for marking boxes, barrels, etc.

The dishes for the wax are preferably "double-boilers," the cheap sort obtainable at any five and ten cent store. Any dish will do; but the double boilers are best and safest.

Across the middle of the wax-dish wedge a stick (piece of a bottom-bar) to wipe the brush on. It is better than wiping across the edge of the dish, as no wax runs down the outside.

If single instead of double dishes are used, great care must be taken not to burn the brushes. Put a piece of wire cloth in the bottom of each wax-dish. A square piece with the corners folded *under* will hold the brushes from the pan bottom. Also, always remove the brushes from the wax before it cools. If you do not at the start, you will later.

Into one dish is put pure wax. This is for the large brush. Into the other is put three parts wax and one part rosin. This is for the small brush, and is used to attach the foundation to the frame.

The outfit is placed as follows: On the bench directly in front of me is the board with a two-burner gas " flat " or heater (an oil-stove with two burners will do as well). Over each of the burners is a dish of wax. A lower temperature is needed for the rosin-wax than for the other. The soldering-iron is placed so that it projects over part of one of the flames. The foundation is piled on the bench convenient to one hand, and frames are convenient to the other. On the floor close at hand are a few hive-bodies to hang the filled frames in.

A sheet of foundation, *together with* the sheet of paper under it, is laid on the board, paper side down. The wired frame is laid over all; the foundation is pushed close against the top-bar and one end-bar. And right here you will learn the *value* of square frames and square foundation. Then the small brush with rosin-wax is drawn along the top-bar and foundation, and down each end-bar. Then the " iron " is drawn along the wires, bedding and securely fastening them. Then the large brush is wiped across the stick in the dish to remove any excess of wax, and the foundation painted with it.

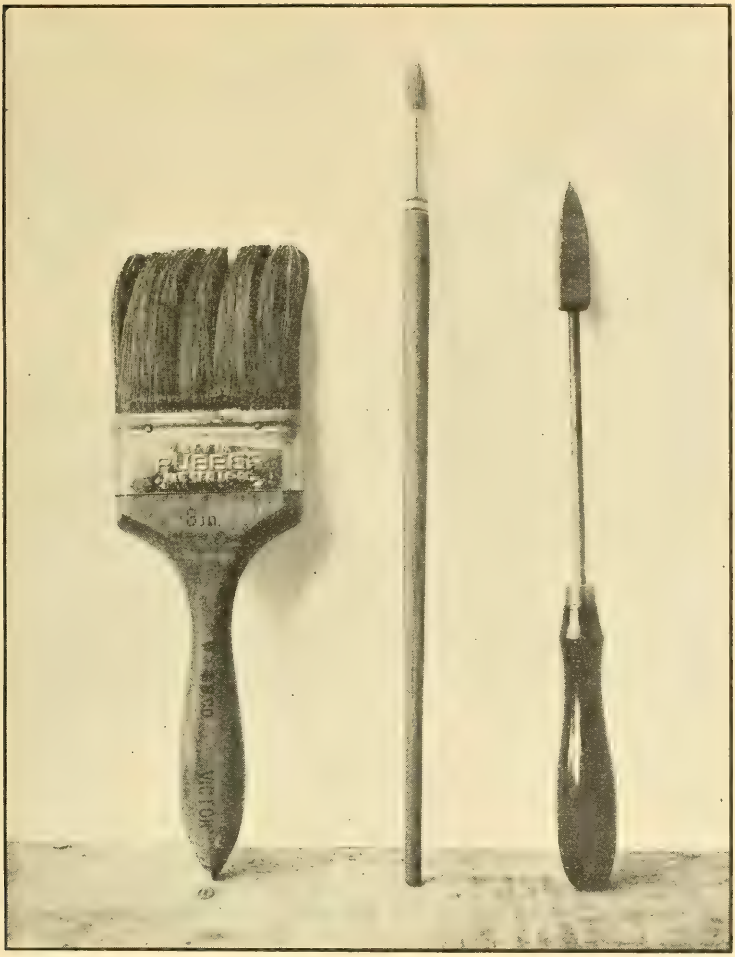
The frame is now turned over, the paper peeled off, that surface of the foundation painted, and the rosin-wax drawn along the top-bar and down the end-bars—all very simple and very rapid. I can pick up the frame and foundation, fasten it with rosin-wax on both sides (but not " paint " surface), bed the wires, and remove it from the board in thirty seconds. Try that stunt with the groove-and-wedge plan and spur imbedder, and see where you come out.

But if you try this system without some knowledge of the principles involved, you will have much labor and trouble before you succeed. Every part of the work is modified by some other part or condition. If the room is cool you can work more rapidly than if it is warm, and at the same time you need a warmer iron and warmer wax. The thinner the foundation, the more careful you must be about the heat of iron and wax, and also of " touch " and speed. All of which suggests a difficult and troublesome process, but such is not the case. Once you have learned the temperature at which the wax and iron work best at the ordinary temperature of the room, you have only to raise or lower it slightly to meet changes in that factor.

If the rosin-wax is too hot, it will melt the edge of the foundation and run down through. It would stick the frame, foundation, and board together were it not for the space made by the two brass-headed upholstery nails referred to earlier. A little wax will flow to the under surface of the foundation any way, so the space is essential. If the rosin-wax is too cool it does not flow from the brush readily, does not fasten the foundation easily, and calls for too many strokes of the brush. Also, it does not spread on the frame in a thin nice stripe as it should.

The rosin-wax will fasten the foundation securely, while plain wax will not; and, furthermore, and most important, the bees can no more resist the attraction of those rosin-wax stripes than the small boy can resist the lure of the proverbial jam-pot. No sooner do the bees begin to gather on the frame and foundation than they begin to draw out the walls of the cells next to the wood, and the result is a joy to the beekeeper.

In "painting" the foundation if the wax is too hot it softens the walls, does not leave enough without a second stroke of the brush, and a second stroke on the softened foundation makes a mess—that is to say, it flattens it to almost a smooth sheet, resulting later in drone-cells in spots. If the wax is too cold the brush drags, a needless amount of wax is used, and the foundation is not properly re-enforced. The ideal coating gives a thickened *rim* to most of the cells, much as the bees keep them when building natural comb. This very materially strengthens the foundation and lessens stretching. I often illustrate the condition by likening it to putting a rigid cast-iron coating on a tough wrought-iron base. Never mind if some cells get a thin cover or capping of wax; or if the wax fills a few cells you may trust the bees to fix every thing as it should be. A very heavy coating of wax may be applied, and the bees will use it all, but there is no



Arthur C. Miller's foundation-fixing tools. The point of the iron is grooved so that it will follow the wire.

advantage in more than enough to stiffen the foundation. The amount of wax in the brush, the weight of the strokes, and the times over, depend on the size (thickness and length) of the brush and temperature of the wax. Nothing but practice can show you this, but it is worth all the effort necessary to learn.

This process was invented by a Mr. Henry Vogeler, and patented in 1900. In 1912 the *Review* secured and published permission to its subscribers to use the process. I consider Mr. Vogeler's invention almost as valuable as the invention of foundation itself.

The use of the iron for bedding and fastening the wires is simple. Only three factors are involved—heat of the iron, pressure on the wire, and swiftness with which it is drawn. If it is too hot, it will melt holes or even long slots in the foundation. If too cold it does not "bed" the wire nor properly cement the foundation to it. The warmer it is, the faster it can or must be drawn along the wire; and the cooler it is, the slower it must go. Too much pressure will cut the wire through. The painting will usually remedy this, but it is a poor craftsman who does such work.

If one's hand is not steady, just place the point of the iron against the end-bar of the frame, just above the wire, and slide it down on to the wire — a proceeding which sounds slow, but is not. It is rather important to draw the iron *straight*, otherwise it may jump the wire and make a hole in the foundation. If it does you will see plainly why I have the paper between the foundation and the board. You can *peel* the paper from the foundation, but if it were not there the foundation would be fastened unpleasantly tight to the board. The paper is one of the little items that make for speed and comfort.

It may be contended that the hot iron will stretch the wire. Well, perhaps it does for all I know; but you have only to look at my frames of foundation and my combs, and take note of the time it takes me to do the work, to satisfy yourself of the value of the process. And I secured these results without the painting process but with heavier foundation.

I have been asked the total cost of a completed comb in material and my time. Here it is as nearly as I can figure it. Frame, 3½ cents; foundation, 5 cents; wax, ½ cent (high); labor, wire, etc., 5 cents. Total, 14 cents. Omitting labor, which is variable in value, can you produce any such combs by any other process, for a cash outlay of 9 cents each? But cash is not the only item, for speed, pleasure, and results are there also.

Getting the foundation built into combs is usually a matter of chance, but it should not be. It is very easy to lose much of the advantage gained by the methods which I have been describing by giving the frames of foundation to unsuitable colonies or at unfavorable times. Veteran beekeepers usually know that the best results are secured by giving one sheet at a time to strong colonies during a good flow, placing it in the middle of the brood-nest, and the novice should follow that method, or, if deviating from it, should be sure that the bees are doing good field work or are being well fed. Personally, I prefer to have my foundation drawn out in upper stories over full colonies, and I know of no better time than when the bees are busy on honey-dew. The combs produced then are filled more or less with it; and later, when the combs are put into the brood-nest, it is turned into bees.

The subject is a large one, and really deserves full treatment; but the best conditions for the work may be summarized in these words: Give the foundation to strong colonies in prosperous times.

Providence, R. I.

ANOTHER EXPERIMENT IN BREEDING LARGER BEES IN DRONE-CELLS

BY M. Y. CALCUTT

I have been carrying on an experiment the past season with raising bees in drone-cells. I noticed that you did something along this line some years ago, and found that the bees contract the cells. I found that was true as to the bees that were first placed on the drone comb, but was not true of the generation that was raised in the drone comb. These bees are much larger than my other workers—in fact, they are so large that novices remark their large size. Dr. Miller's contention with me was that I might as well claim that large boots make large feet. Well, Mr. Root, won't they do that same thing? These bees will not be allowed any thing but comb four cells to the inch this coming season. I had them raise their own queen from the drone-cells, and they know no other size of comb; hence they do not contract it. I am carrying these experiments on in the observation hive, and can report correctly on each day's work. Their tongues are longer than my other bees, and I think they will go over 18-100 of an inch. I will make a further report at the end of next season's work.

Seattle, Wash.

[Dr. Miller has had special opportunities of being informed in regard to breeding larger bees, and we asked him to reply, therefore, to the foregoing. His reply follows.—Ed.]

At some time in his career it is likely to occur to the ambitious beekeeper that it would be a fine thing to have bees of larger size than usual, and that the nearest way to reach such a thing would be by having them reared in larger cells. That might be confidently expected if the young workers were at all cramped in worker-cells of the usual size. But are they? Is it not likely that in the economy of the hive, where every thing is so nicely adjusted to its desired end, the cell is exactly adapted to the size of the bee—not an iota too large, not an iota too small?

Actual trial, however, is better than trying to reason it out. At one time I put a colony of bees upon a set of drone-combs. Instead of going promptly to work to rear bees of enlarged size, they just decently swarmed out. None of that sort of combs for them! If drone-comb in smaller quantity be given, it is likely to be used either for storing honey or for rearing drones, but not always. Workers reared in drone-cells are much more common than is generally supposed. I venture to say that it would be a difficult thing for you to find an apiary of 50 colonies or more in which you could not find drone-cells in which workers had been reared. Let an old queen have an inordinate quantity of drone-comb, and an inordinate quantity of drones will be reared. But let a vigorous young queen succeed to the throne, and any drone-comb that happens within the brood-nest is likely to be filled with worker-brood. Drone-comb that has been so used is easily recognized. The mouth of each cell is narrowed to the size of a worker-cell, giving it the appearance of being partly sealed over.

But workers from such cells (and I have watched them as they emerged) are not perceptibly larger than common. If they were, it ought to be a common thing in any apiary

Second crop of white clover at Cannon Falls, Minn., caused by copious rains in July. Photographed July 18 by S. C. Swanson.

of considerable size to find these enlarged workers.

All of this, however, is not conclusive proof that workers beyond the usual size are not possible. Abbe Pincot has for several years maintained that he has bees of unusual size, reared in cells larger than normal. To be sure, his statement is not universally accepted; indeed, it has been strongly opposed, so that pages have been occupied in the discussion. At the same time, it is true that a good many foundation-presses have been distributed in Europe making cells larger than the common size. Yet I do not remember to have seen it claimed that any one else had succeeded in rearing larger bees in these cells of larger size.

I have, however, had indubitable proof that bees above the usual size can be reared, because *they have been reared.* Some years ago a Florida physician, whose name I do not now recall, sent me a queen with a few workers, and pieces of drone and worker comb. The difference in the size of the bees was not so marked, but the larger size of the cells in the comb was very striking—possibly because it is easier to measure cells than bees. As I now recall it, the worker-cells were in the neighborhood of the size of ordinary drone-cells, and the drone-cells correspondingly larger. I don't see how it could be possible that there was any fake in the case. I think any experienced beekeeper would have said that the combs were indisputably built by the bees.

I do not know by what process these bees were obtained, nor do I know whether they are yet in existence. The queen I received was put upon ordinary worker-comb, and of course her progeny were of the usual size. Some one will ask why I didn't put her on drone-comb. I didn't know enough. But the fact remains that, by whatever means obtained, bees of unusual size are possible.

Granted that we may have enlarged bees, there remains the question as to the gain. Will larger bees fly faster or further? Not at all certain; indeed, it may be the other way. A bantam is a better flier than a Buff Cochin. A larger bee should have a larger honey-sac. That might or might not be an advantage. But surely there would be advantage in the greater tongue-length of larger bees, if that greater length should secure from red clover the treasures from which our common bees are now barred. That still leaves the question whether it is better to work for larger tongues or smaller blossoms. But that's another story.

The matter stands in this way: Larger

bees are possible, for larger bees have been. It is not impossible that the way to get them is through larger cells—perhaps drone-cells. To be sure, a larger shoe will not breed a larger foot; but it is possible that a bee is not the same as a foot. A bigger bee may be no gain; and, again, it may be. At any rate, Mr. Calcutt's efforts are interesting, and one cannot but wish him success.

C. C. MILLER.

A POWER EXTRACTING-OUTFIT AT LAST

BY ELMER HUTCHINSON

It is now more than thirty years since I formed a partnership with my late brother, W. Z. Hutchinson, and began keeping bees. At that time we had a Novice two-frame honey-extractor. We also had a large foot-power buzz-saw with which we used to cut out the most of our bee-supplies. Sometimes when resting from the arduous task of running it we used to say, "If we only had a small engine to run it, what a lot of hard work it would save us!" I do not remember whether gasoline-engines were in use then or not, but I think they were; but they were not a very reliable source of power at that time. Certainly no one had yet thought of using one to turn an extractor.

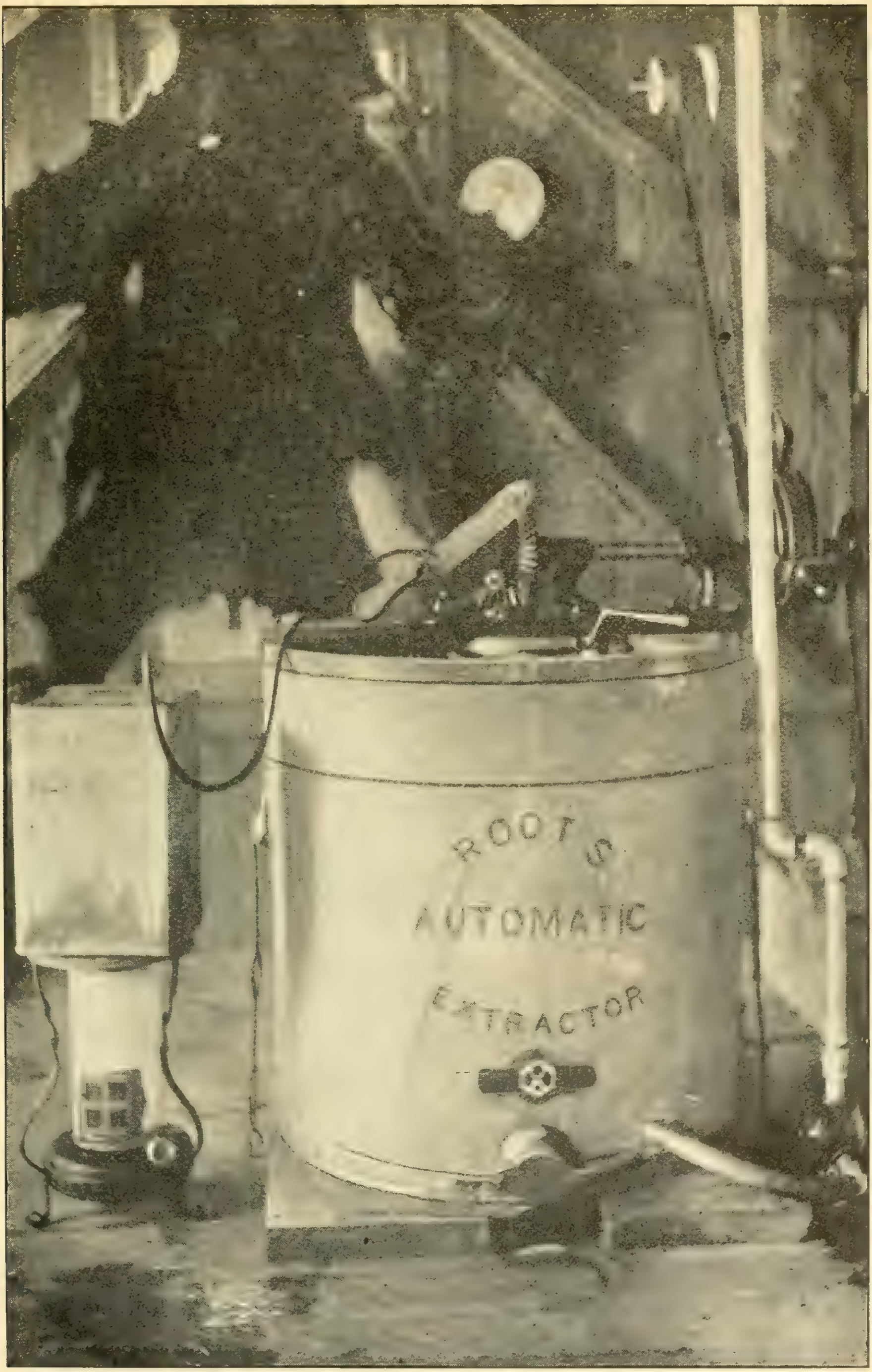
At that time the production of extracted honey was not the extensive business that it now is, most of the honey produced then being sold in the comb. There were no ball-bearing reversible extractors and honey-pumps, driven by power; no steam-heated honey-knives, no Porter bee-escapes, no queen-excluding honey-boards, and last, but not least, there was no market for extracted honey in large lots at paying prices.

When my brother and I started keeping bees in the raspberry regions of Northern Michigan we intended to get an eight-frame extractor and a small engine to run it that we could move from one yard to another; and had not his death occurred we would have bought the outfit the following year. After his death I bought his interest in the bees and fixtures we had here in the North, and that delayed my getting a power outfit for two years.

Last winter we were clearing off a piece of land. There was quite a lot of beech and maple timber on it that would make good firewood, which we cut in log lengths and piled upon skids. The question then arose as to how to get it cut into stove lengths. A neighbor had an old rattle-trap machine for sawing wood, and an old nearly worn-out gasoline-engine. I studied on the question for some time as to whether to get him to saw it or buy an outfit of my own. I finally decided to hire it cut, moved his machinery over, and went at it. When his engine would run, something generally ailed the sawing-machine, and when we would get that fixed, then the engine would balk. It cost me 50 cts. a cord to get that wood blocked off stove length.

Well, the idea of owning an engine had become fixed in my mind, and, like Banquo's ghost, it would not down. So I began sending for engine catalogs. I believe I wrote to every firm in the United States that makes gasoline-engines, and I put in the rest of the winter studying catalogs and talking with agents who had been sent to try and sell me an engine. I wanted one that would run my extractor and honey-pump, buzz-saw in the shop, pump water, cut wood, or do any kind of work I wanted done. I finally decided on a four horse-power four-cycle engine that could be run on kerosene, thus saving half the cost for fuel. The only difference there is between this engine and a regular gasoline-engine is that there is a small tank in front on the

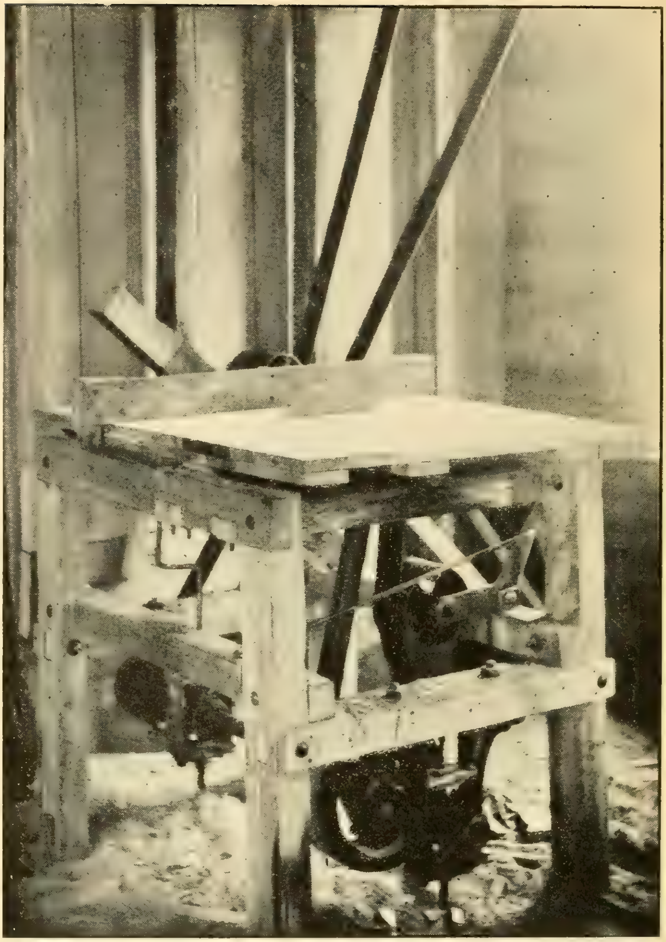
Elmer Hutchinson's plant. Left wing, honey and extracting room; central part, shop; right wing, well-house and engine-room.



Hutchinson's steam knife, boiler, honey-extractor, and pump, belted to pulley on the line shaft.

oil-engine to put gasoline in to start it with. The engine gives perfect satisfaction, and does splendid work, running as steadily and regularly as a clock all day, with no attention whatever except an occasional oiling. A gallon of kerosene will last as long as a gallon of gasoline, and gives as much power. The only trouble in using kerosene, that I have found, is that the electric igniter has to be cleaned somewhat oftener. That is a short job, but it is a dirty one.

If I were going to buy a small engine, a two-horse-power or smaller, I would get one to run on gasoline. The extra cost in running one of this size on gasoline would not amount to much, for it would use but a gallon or so a day; and for a very small engine I believe the gasoline would give better service. But from a three-horse-power up, there is quite a saving on the fuel bill in favor of kerosene; and after you have learned to run one it gives as good service as one does run on gasoline. My four-horse-power engine gives sufficient power to cut eight cords of stove wood per hour from green hardwood poles if they do not exceed 8 or 9 inches in diameter, and I can rip pine lumber for frames as fast as I can shove it through.

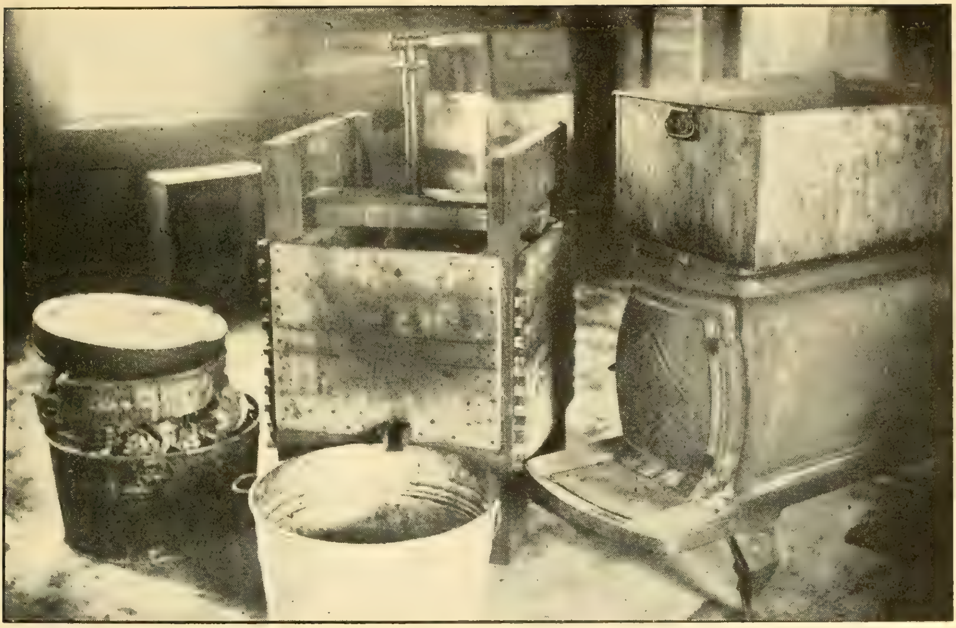

Home-made saw.

After buying the engine I had to have more shop room. I had a honey-house 14 x 16 feet. Last summer I built on another part 16 x 24 feet for a shop; and on one side of that a building 10 x 16 feet was erected for an engine and well-house, all two stories high, the upper story being used for storage room.

The new parts have cement floors, and make an ideal place to store honey on after it is canned ready to ship. In the shop I have a work-bench in one corner, a buzz-saw in another corner, and a large box stove that makes a dandy place to render wax. If I spill a little on the floor, there is no damage done.

The older building I use for an extracting-room. The extractor and honey-pump are fastened to the floor, and are left there the year round. When I want to start extracting, all I have to do is to start the engine, slip on the belt, and off we go. There is a line shaft running from the engine-room through the shop into the extracting room, and all the machinery is run from that. I think it gives a more steady motion than it does when the engine is belted direct to the machine. There is a tank, at one side of the extractor, that will hold 4000 lbs. of honey. The honey is strained through a cheese-cloth strainer, and allowed to stand a week or more before it is drawn off in cans. Beekeepers who can their honey as fast as it is extracted would be surprised to see the amount of scum that will rise to the top when it is allowed to stand a few days before being canned.

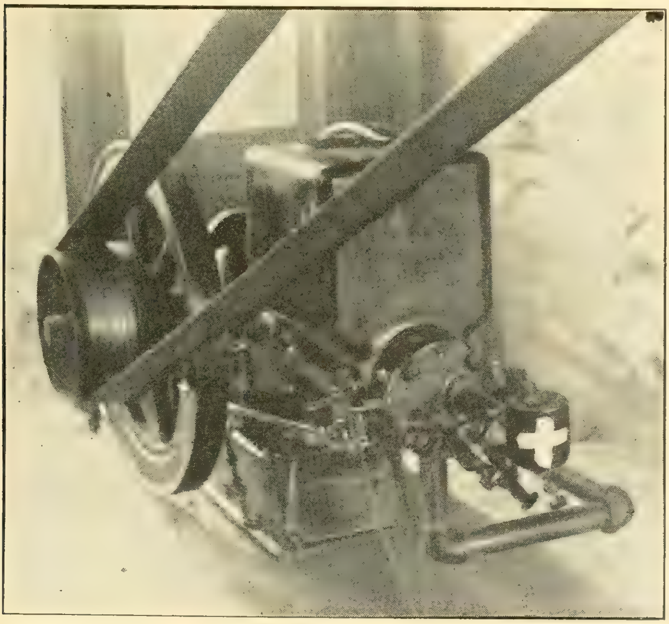
My buzz-saw I made myself at a cost of about $14.00 for the materials, including four saws and the belting. I also made my wax-press. The pressure is applied by means of an iron bench-vise screw. I can get about



Home-made wax-press with tank on stove for melting old combs and cappings.

$2\frac{1}{2}$ lbs. of wax from ten old L. combs, so I don't think I leave very much wax in the slumgum.

At the close of the raspberry-honey harvest we took the honey off and stored it in the bee-cellars, so the bees could not mix buckwheat honey with it. It was late in October when I finished my new building, got the line-shaft up, and the engine and machinery installed. Then we hauled the honey and piled it up in the shop, built a fire in the stove, and warmed it up a little, then started extracting. As I turned on the power and stood watching the extractor-reel spinning like a top, rapidly throwing out the thick waxy honey, my dream of years had come to pass. About the first thought that came to my mind was, "What a lot of honey we have left sticking to the combs! what a lot of hard work we have done that could all have been saved if we had only bought a power outfit years ago!"



Four-horse power engine that uses kerosene for fuel. The white cross indicates auxiliary tank holding gasoline for use in starting.

I am already longing for next summer to come, so we can use our new outfit again. The beekeeper who has a steam-heated uncapping-knife, a power outfit, always including a honey-pump, and who cannot enjoy himself until he just aches using them, had better change his business. But laying aside the pleasure of using such an outfit, it is a money-saving proposition to own one. I have seen combs extracted by hand power that I know had more than two pounds of honey left in the combs of each super that could have been emptied clean, and in less time, with a power outfit. For the person who cannot get help, it is almost a necessity. I ran it alone awhile one day, did the uncapping, tending extractor, and all, and extracted at the rate of more than 300 lbs. an hour, and my extractor is only a four-frame one. I hope to have an eight-frame outfit next summer. We had every thing in perfect running order before we started extracting. The pulleys were all lined up perfectly. I spent more than three hours in getting the honey-pump fastened down and lined up to suit me; but when we did start, every thing worked well. The belt slipping on the honey-pump was the only trouble we had; but a little belt-dressing quickly ended that.

I wish to say to all beekeepers who produce extracted honey, if you never saw a power outfit at work, go somewhere next summer where they have one, and see it work. My guess is, that you will soon own one yourself, even if you have to mortgage your automobile to pay for it. Knowing what I do now, if I had only 6000 lbs. of honey to extract, I would have a power outfit.

The most of my beekeeping life I have been in partnership in some form or other with my late brother, W. Z. Hutchinson, and through all the pleasure in using our new plant, there comes a feeling of sadness that he is not here to use it with me. His one great hobby, aside from bees, was machinery.

Pioneer, Mich.

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BEES AND HORTICULTURE

In looking over our large stock of old bee-books we came across one in French entitled "Bees and Apiculture," written by Mr. A. de Frariere, and published in Paris in 1855. The advanced position taken by the author causes the book to seem almost as if published within a year. He was a successful and scientific beekeeper in his day, and has left a little work which should no longer be allowed to "waste its sweetness on the desert air." The chapter on the fertilization of fruit-blossoms by bees is so graphically given that we have translated it entire for the pleasure of our readers. It will be noted that the author seems to have had the impression that the promiscuous mixing of pollen on different branches and even different trees would have a tendency to cause the fruit to degenerate; but, as shown on page 229, March 15, this is a great advantage, especially when the pollen of one kind of apple is mingled with that from an entirely different kind. The writer not only shows that the bees do not do any damage to the blossoms, but confer a great benefit on them by fertilizing them.—Ed.

One of the prejudices (and they are numerous in France) which retard the development of apiculture in some countries is the belief that bees injure fruit-trees. As I have already given one instance of the kind I will risk a second one, in exact conformity to the truth, in order to dispel this erroneous opinion.

One of my friends, whose fine apiary I had just visited, told me one day of the opposition which he encountered at the hands of one of his farm-tenants, in setting out some hives at a point on his land that seemed very favorable for the bees.

"Would you believe it," he said to me, "that our peasants imagine very seriously that the bees are partly the cause of the bad crops from our fruit-trees? and their reasons for it are not lacking. I am convinced they are in error; but I have made efforts to enlighten them on this subject. To-morrow you will hear my tenant talk. You combat this prejudice, and perhaps you will have better success than I. I shall be able to use my authority; but I fear that, pushed to the wall, he will not try to prove to me in one way or the other that I was wrong. The country people are very rustic."

It was only a few days after that when the weather permitted the realization of this plan. On that day the sun marched out victoriously into a cloudless sky. The peach, apricot, plum, and other trees, the blooming of which had been retarded by the cold days of the preceding month, displayed a thousand blossoms which spread out under its beneficent rays. Finally, all Nature was adorned as if she had invited all creatures to a splendid feast. The happy little birds twittered as they leaped from branch to branch, and myriads of insects hummed joyously, while the plants seemed to show with pride the limpid pearls which the dew had deposited on their growing leaves—a decoration of which the sun would soon deprive them.

The farm to which Mr. Sarrazin led me was situated at the extremity of a village which enjoyed the privilege of furnishing the most beautiful fruits, which were greatly admired in the market of Orleans. The farmer himself raised a considerable amount of produce in his orchards, and was very proud of being reckoned among the most skillful horticulturists of the country.

"Good morning, father Philip," cried Mr. Sarrazin, as he saw a man turned with his back to the road, seemingly plunged in a sort of ecstasy at the view of a shower of white blossoms falling from the tops of the plum-trees. "Good morning! how goes it to-day?"

The interrupted man turned around suddenly, and saluted the two visitors.

"What are you doing there, father Philip—admiring your plum-trees as if estimating the crop in advance?"

"Ah! pardon me. I was thinking of you at this moment. I said to myself, as I watched the blossoms fall like the snow, that I had been too sagacious to allow myself to be led astray by your fine-spun reasoning on the subject of insects. Just listen."

He pointed at the blossoms with which the ground was whitened, and the bees humming on the trees.

"There! I have the pleasure," he continued, "of convincing you that these little animals injure our crops. See what happens, although almost nobody in the village has bees. Remember, now, if we have all of them, there will not remain a plum nor any fruit of any kind on our trees."

"Do you believe that, father Philip?"

"Do I believe it? Why, see for yourself, sir. I am only an ignoramus; but it does not require much science to understand what one can see with his own eyes. What do you see at this moment? Look, now—look!"

We were just then at the foot of one of the most beautiful plum-trees in the orchard. Hundreds of bees were struggling with each other on the beautiful blossoms, and even seemed to dispute their possession. At times there could be seen two or three bees suspended on the same blossom; and this, yielding to the unwonted weight, became detached, and dragged in its fall the lively little insects, as the farmer said.

Mr. Sarrazin waited for me to take up the argument as if he himself had been convinced. The farmer manifested his satisfaction by assuming a certain air of triumph over an adversary more skillful than himself.

"Let us examine carefully and see whether father Philip is right," Mr. Sarrazin said at last; "and if such is the case I will admit frankly, and there will be no further talk about putting bees on these premises."

I had had time to make my observations; but I thought, and justly, that the only way to convince father Philip was to demonstrate the truth by visible evidence. Seizing a branch loaded with blossoms I explained very clearly that the bees could be accused of pulling down, a few moments before, only such blossoms as never could have attained maturity.

"Thus, so far from being injurious to your fruit-trees, the bees seem designed by Providence for one particular work. See," I added, showing him a large shaggy drone, six times larger than a common bee, which was hanging to the blossoms, but which, nevertheless, did not fall under the extra weight. I called father Philip's attention to the fact that, among the blossoms forming the same bouquet, one can rarely find more than one or two, rarely three, the peduncles of which are firmly fastened to the branch; the others, evidently not being designed for fertilization, naturally fall soon after the time of blooming. Those that resist this first crisis are detached later. After fertilization has begun, they exhaust needlessly a part of the sap designed for the young fruits which alone are capable of acquiring full growth.

The farmer was what might be called a candid man, and possessed of good sense. He did not hesitate to admit that my observations were just. He agreed graciously that, if all the blossoms were to become fertilized, the exhausted trees would perish, or else it would be years before they would be in condition to bear again.

Mr. Sarrazin was charmed to see his farmer-tenant of such a good disposition. He confirmed enthusiastically the last considerations, which he had even made himself, and which entirely exonerated the bees of the things of which they had been unjustly accused.

"There is still another thing," I added, "that militates in favor of insects nourished by honey and pollen; and that is, they are charged with the important mission of assisting fertilization of blossoms. When one bee alights on one blossom, and seeks to penetrate it to gain access to the honey (or nectar) deposited there, it occasions an agitation or shock, which causes something like a white cloud to arise, and this is the dust contained in the stamens. The pistil receives it, and thus fecundation is effected. In flying from blossom to blossom, one can easily believe that the bees favor somewhat the degeneracy of species; but that is nothing. Aside from a few exceptional cases, these insects, obeying a law of Providence, do not get a full load from a blossom of a species different from the one they have just quit."

The farmer said he would no longer oppose Mr. Sarrazin's plan.

"And you will act wisely," added the latter. "Besides, is it not right for you to profit from the honey on your own trees, which neighboring bees will suck from your blossoms when you are not able to prevent them from doing so? You are too good a man to let it all go to others."

This sally caused the man to laugh; and he was convinced when, at the swarming season, the bees gave him six hivefuls of honey by way of surplus.

The considerations I have just adduced will suffice to prove the benefits of bees to horticulture.

AN AUSTRALIAN HUSTLER

BY MAJOR SHALLARD

I am sending a photo of my son Phil with a load-up. He is a "tiger to work," "though I says it as shouldn't," and there being no horses available at the time, and the goods having to go to another farm four miles away, over a very hilly road, he packed them on to his bike and carried them. The load consisted of a wheel-barrow, ten yards of wire cloth, camp-kettle, hurricane lamp, Jumbo smoker, 14 lbs. nails, 5 lbs. galvanized screws and washers; hammer, tomahawk, brace, and six bits; two hand-saws, food for two days, and a change of clothes. His working hours are from as soon as he can see until he can't. Needless to say, he is working for himself managing my Bathurst farms on shares.

S. Woodburn, N. S. W., Aus., Feb. 8.

[The following letter is from the "Hustler" himself.—Ed.]

AN AVERAGE OF OVER 200 POUNDS FOR 800 COLONIES

BY PHIL SHALLARD

On page 177, March 15, you say the Western honey-producers' annual output is 200,000 lbs. Are the crops in the States so small as to aggregate only this amount for an association, or is it a small association? One apiarist in this district took 201,600 lbs. for his biggest yield from between 800 and 900 colonies, and he never expects less than 112,000 lbs. These last two seasons have brought him down somewhat, though. Last season he took only something like 44,800 lbs., and so far as I know he has not extracted at all this season.

The best honey is worth from 6 to 8 cents here, according to the crops. It will average 7 cents, whereas your price is much higher, so that you could manage with smaller crops. This is for extracted honey. People here don't care for comb honey. They seem to think the wax will kill them, and consequently sections, 14 oz., are sold for 12 cents to 14 cents each retail.

The nearest approach to pollen that we can get is pea-flour. It is rather bitter to taste, but usually the bees take it well when natural pollen is scarce, and seem to do middling well on it.

Sac brood has made its appearance here. I had it in an out-apiary last season; and as I had never seen foul brood I at first mistook this for it. I had only two colonies affected last season; but this season there are a dozen with it, so it's on the increase. I notice it only where the colonies are weak and poor honey-gatherers. It seems to come only in the fall of the season.

THE SMOKE METHOD OF INTRODUCING OLD IN AUSTRALIA.

On page 876, Dec. 15, you say a new method of introducing queens was brought to light by Arthur C. Miller. This method my father (Major Shallard) has been using ever since I can remember, and I was under the impression that every one knew of it. He also practiced smoking the colonies once a week with an ordinary smoker to cure paralysis; and although it never cured it, it used to steady the disease and keep it in a dormant state.

WATER MADE TROUBLE WHEN MOVING BEES.

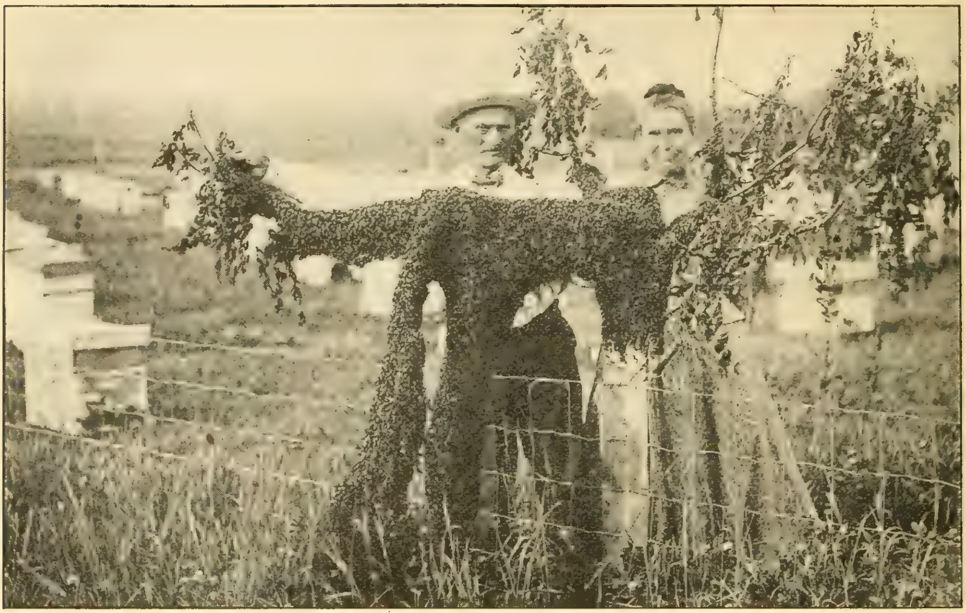
I have read much about shipping bees without loss and keeping the brood in good order while in transit with water. Will you please explain how this is done? Fourteen months ago I moved 80 colonies 100 miles by rail. They were all two-story, and not very strong. They had a wire-gauze frame over the top of each colony, with a ⅝-inch space between it and the top-bars. The entrances were closed with wire gauze. They were packed one layer deep on the floors (which were covered with straw) of two louvre vans, and bags of straw jammed

Phil Shallard's substitute for an auto truck.

between the ends of the hives and the walls of the vans. The pick-up train took the two vans in tow at 1 A. M., and after going 60 miles it was 8:30 A. M. At this stop the assistant and myself gave the bees water by sprinkling it over the wire screens. The bees drank very greedily of it. We finished the journey by 12:30 P. M., and gave the bees more water. Owing to the lack of carriers the bees could not be unloaded and carted to the home farm till the second night of their arrival at the goods yard. They were watered once again before they left the vans. When the bees started to fly next morning they carted out one double handful, on an average, of dead bees. The weather was extremely hot, and the small black ants attacked a couple of the weakest colonies, and they swarmed out within two hours of when they started to fly. I did not know the ants were at them.

Last Christmas eve I moved 12 single stories on the same journey, but these had no water *en route* till they were unloaded into the goods-shed at 1 P. M. Then I sprinkled them with water and carted them that afternoon to the home apiary, 12 miles from the railway station. Next morning I looked to see how they had stood the trip, and found one colony with 90 per cent of the bees dead in it (this was the strongest, and had received the most water); and the meat-ants (iron-stone ants) had paralyzed the rest. In the other 11 colonies I found a large percentage of the bees dead. I formed a good many nuclei last week, and filled one side of a drone comb with water for each of them. One nucleus seemed to generate a lot of heat in the hive, and the bees died. The combs and dead bees were all clammy and damp as though the hive had been filled with steam. The nuclei were all closed, and made bee-tight, so that the bees would not all return to the parent hive when released, and perhaps this caused one of them to suffocate. The heat this summer has been ranging to 106 degrees with hot winds. This climate is subject to very swift weather-changes. The altitude is somewhere about 2400 ft. above sea-level. There is no scrub, no clover, and no lucerne within range of 90 per cent of the apiarists here, and they must depend entirely on bush timber for the crop. When it comes drouthy weather they get but a small crop, and the last two seasons have been very hot and dry, so that not only myself but others have not extracted a single pound of honey. There is plenty of bloom, but no honey in it, and I guess it would puzzle almost any one to get a crop under these conditions.

Three years ago I moved 300 colonies for my father on the north coast, early in the spring, with a wagon and horses. These



This mammoth swarm was the product of one queen on 24 combs. The swarm issued June 11, 1913. From J. W. Davidson, Yorktown, Ind.

bees were all carted in the night, and the longest distance was 22 miles and the shortest 12 miles. Some of these colonies were sprinkled with water (not more than a small cupful), but those that did not receive any water I always noticed came through the best. In this instance, also, the bees seemed to have died through suffocation caused by the water, as they were clammy and damp.

Eglinton, N. S. W., Feb. 10.

[We are of the opinion that you gave too much water. If the water is put directly on the screen it must be applied in the form of a fine spray so that it will not drench the bees, and not too much should be given at a time. We have tried all ways of supplying water, and like the cloth plan the best. That is, we roll a long cloth over the row of screened hives and sprinkle the cloth. The bees reach through the wire screen to get the moisture from the wet cloth.—Ed.]

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BEES GET HONEY FROM RED CLOVER WHEN IT IS DWARFED BY DROUTH

BY B. A. MANLY

On page 125, Feb. 15, Dr. Miller refers to the "red-clover strain of bees." From the little experience that I have had I am convinced that it is not the difference in bees that enables them to work on red clover, but a matter of weather conditions. In 1910 we had a summer in this State without rain. It was so dry in midsummer that most of the vegetation was dried up. The early honey-flow was fair, and then it seemed as if the bees had nothing to do. In August I was sick; and as I sat on the back porch I noticed the children would occasionally leave the honey-house door ajar. I warned them that they would find it full of bees. But the bees did not come; and as I thought I knew that there was nothing for them to get in the field I could not understand it. Well, I walked down to the apiary on a day as hot and dry as it often gets to be, and to my surprise the bees were busy, giving no heed to any thing but their work, and they were all going in one direction, which happened to be toward my place of business—the lumber and grain office. The next day I went to the office; and while there I thought I would see if I could find any thing of these busy bees. Just beyond the lumber-shed was a forty-acre field of red clover.

The clover was badly dwarfed by the long-continued drouth; but the bloom was there, and literally covered with bees. The result of that season's work was 200 lbs. per colony (had no swarm) of as fine honey as I have ever seen.

Since then I have made close observation, and have not seen bees work on red clover except when the weather was very dry and the clover badly dwarfed. For instance, the latter part of last summer was extremely dry, and we got a good crop of red-clover honey.

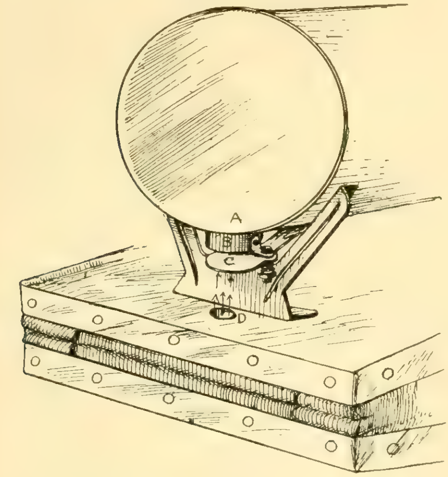
Now, from this experience I am convinced that it takes a dwarfed condition of red clover to make it possible for bees to reach the nectar in it.

Milo, Iowa.

A SELF-EXTINGUISHING SMOKER

BY F. C. MYER

This is a smoker which can be extinguished when through using by simply closing the blast-tube with a slide. This closes the lower part of the smoker; and as the fire generates carbon dioxide (this gas being heavier than air), it settles to the bottom around the fire and extinguishes it in about three minutes. The most inflammable material will smother very quickly, and without leaving a single spark when its air supply is shut off.



The closing apparatus is a simple iron slide about the size and thickness of a five-cent piece, and slides over the outer end of the blast-tube, working in the same way as the shut-off on a molasses-barrel or extractor. This arrangement will not clog up with soot or the like, and should be as lasting and serviceable as the rest of the smoker. It is not absolutely air-tight, and does not need to be so. When perfectly air-tight the fire is extinguished within one minute; but this is not necessary. If extinguished in several minutes it is quick enough, as the main part of the fire is out in a fraction of this time.

Usually when a smoker is put away without throwing out the fuel or putting it out, it will burn for several hours. This, when done time after time, will wear or rust out a tin-body smoker much quicker, and, besides, cause danger of fire. The saving of fuel also amounts to a good deal, as a person will often have only a few minutes' work with the smoker, or will have added a new lot of fuel just before quitting. It would be a waste to throw it away, and yet it is some trouble to take it out and carefully put out every last spark; and if every spark is not put out, it will likely be burning away full blast in half an hour.

During a rush, such as in extracting time, when through for the day and everybody is sticky and tired, a little convenience of this kind helps. This might be especially so for hired help, who will sometimes let things go rather than go to any extra trouble to be careful.

I have found the apparatus to be quick, safe, and economical, and a great convenience.

Lowell, Ark.

[We recall that several years ago one of the old-time smokers—possibly the Quinby—was equipped with a slide or damper to close the draft in order to put out the fire and save the fuel. The idea has some merit, for the charcoal, or unburnt fuel, thus retained in the smoker, is kept dry and in condition to light easily with a match the next time the smoker is used.

As Mr. Myer suggested in his letter to us, any one may try the plan by inserting a cork in the blast-tube. It occurs to us that the use of a cork or plug attached to a leg of the smoker by a string a couple of inches long would be a very simple way to accomplish the same results. It would have the advantage of fitting rather more tightly than the slide, and would not take a great deal more time to put it in place than to turn the slide.—Ed.]

DIRECT INTRODUCTION OF QUEENS BY THE SMOKE PLAN

BY ARTHUR C. MILLER

The direct introduction of queens is the oldest method known. Introduction by caging is of comparatively recent origin, but by whom suggested I do not know. Various forms of each method have been used from time to time with different degrees of success, the cage plan prevailing probably because the manufacturers of mailing cages sent them out with instructions for their use in introducing, and the average individual keeps to the beaten way.

Réaumur, I believe, was the first to describe a method of direct introduction, though probably not the first to use such. Little change was made in the direct method until Simmins brought out his fasting plan. Running queens into nuclei by using tobacco smoke was of about the same date, being particularly championed by Henry Alley, but not for use with full colonies. He used, advocated, and described cage plans for such. At the same time, tobacco smoke was urged for uniting bees, queen introduction, and for handling cross bees; but for the successful introducing of queens to full colonies it failed to fulfill expectations. Its use was based on a theory of odor, the tobacco being supposed to scent the queen and bees alike. How the odor theory originated is a mystery. Certainly no proof has been furnished that caged queens acquire any particular odor. It was affirmed and accepted that they did, and that apparently settled it. But *proof* is yet to be presented.

Even Mr. Simmins, in his successful method by fasting, could not free himself from the idea that odor is an important factor, for he emphasized the use of a fresh cage for each queen. Following his plan I introduced many queens, using a tubular wire-cloth cage and scalding it after use. That became tiresome, and I used it for several queens without such deodorizing, and found I was as successful as before, and after awhile I quite got over my belief in odor being a factor. But it was a good deal of a nuisance, having to be on hand at dusk to run in queens (Simmins' instructions), so I gradually dropped the plan, and used the cage plan with its varying results.

In conversation with Mr. Alley he was quite positive that it was the odor of the tobacco smoke which insured the safe introduction of virgin queens to his little nuclei, and it was to confine that smoke in the small hives that he plugged the entrance with a leaf, using such because over night it would wilt and release the bees in the morning without any thought on his part. Later I learned that virgin queens were usually lost by their running out when not confined, rather than by trouble from the bees, so Mr. Alley's leaf rather than the tobacco odor was the reason for his success in introducing virgins to nuclei.

These and sundry other things again led me to try introducing queens by direct methods, and it was an easy step to combine the principles of Simmins' fasting plan and Alley's tobacco smoke and confining plan, and apply it to full colonies in the daytime. The fasting part got shortened to the point where it vanished, and plain smoke was used instead of tobacco. The fasting was a bother and "died from neglect," and not always having tobacco I used whatever fuel was handy (the tobacco was used because supposed to be more potent in subduing the bees); and so by degrees with many breaks, stops, and backward steps the present direct method of introduction by smoke and confinement was evolved.

This plan as now used is as follows: The entrance is reduced to about an inch with any convenient material, such as grass, leaves, rags, or blocks, and then a few (two to four) puffs of smoke are driven into the hive, and the last inch of the entrance is closed. The bees are soon "roaring" loudly. To the novice it may be well to explain that "roaring" is the loud hum of "distress" very different and much louder than any normal humming of the bees. As soon as they are roaring well the inch plug is removed, the queen is run in, followed by just enough smoke to hurry her along and keep the bees from running out and the entrance is plugged again. In a few minutes, usually five to ten, the small plug is removed and the bees are allowed to ventilate. The whole entrance is not opened at first, or a mass of the bees would rush out, and perhaps the queen with them, and at best it makes too much commotion. After the bees have ventilated and quieted down, the rest of the closing material is removed. This is the method in its simplest terms; but there are several modifying factors which, if understood in advance, will save bother and puzzling.

The first is the smoke. To one who is accustomed to using a large-sized smoker with good fuel, "two to four puffs" means one thing, while to the man with a small, poor, wheezy affair, and poor fuel, it is something else. To make the matter of smoke more plain, I took a good four-inch smoker, loaded it with old burlap, none too dry, got it going properly, and had it photographed. The illustration shows a cloud of soft, white, cool, but very "choky" smoke, and two to three puffs of such smoke driven well into the hive will make the biggest colony "roar"—not hard puffs like the one pictured, but sufficient to make it go well into the hive. There is rather more danger of giving too much smoke than too little. Dry, thin, hot smoke is likely to injure or burn the bees—often makes them quite cross, and does not work nearly as well as the other sort. In smoking the bees, if the entrance is but about 3/8 inch high it is not easy to drive the smoke well into the hive; and in such cases it is well to lift the cover a little, send two or three puffs under it, close it quickly, and then give a couple of puffs at the entrance. For years I have used nothing less than an inch-high entrance; hence I previously failed to write of the difficulty of proper smoking where a small entrance was used.

The next factor is the colony condition. It makes no difference what that is so long as it is quiet. It may have a queen, have been just dequeened, have queen-cells in almost any stage, or have laying workers. The new queen will be accepted under any of these conditions. Under the first, she may or may not supplant the reigning queen. That is a separate matter, and will be treated more fully further on. Just after dequeening I consider to be the very best time for introducing, *provided* the dequeening was done quietly. With a good strain of bees the deft operator will readily get the old queen with little or no smoke, and when he closes the hive the bees are nearly as quiet as if they had not been disturbed; therefore they respond perfectly to smoking. Such is not the case, however, when a colony is searched through several times, heavily smoked, sifted, etc., as often occurs when looking for black queens, timid queens, small or imperfect ones, or with cross or nervous bees. It is impossible to get bees into the right condition for receiving the queen immediately after such an overhauling. To be sure, one can sometimes drop in a queen or place her on the combs while the hive is open, and the bees still in a turmoil immediately after removing the old queen, if the new queen is fresh from a neighboring hive. The safer way is to close such colonies and let them remain undisturbed until thoroughly quieted, usually about twelve hours, and then follow the prescribed plan.

Another factor of colony condition is food supply. I have found that some persons have tried to run in queens to colonies destitute of stores—robbed out. It can be done, but is difficult. Give to such a comb of honey or a good feed of syrup, and reduce the entrance so the bees can protect themselves.

The presence of queen-cells is no hindrance except under the following conditions: When cells are about ready to hatch, perhaps the young queen already calling, a good honey-flow and hot, humid weather, then the advent of a queen, particularly if light in eggs, as after a trip in the mails, sometimes precipitates a swarm. That is exceptional, however, the cells usually being destroyed. A virgin escaping from a cell at about the time the queen is introduced may supersede the new queen, though that is rare. But it is not good policy to keep a colony queenless long enough for such conditions to arise.

A smoker in the proper condition, giving a good volume of thick, cool, smoke.

Laying workers are no bother at all when running in queens by the smoke plan, but as a rule a colony infested with laying workers is not worth giving a queen to. It is far better to set such on top of some other colony, giving the bees and queen of the latter the run of both stories for a week, and then separate the two parts, giving a queen to the part without one.

Introducing to nuclei in full-sized hives has not been entirely successful unless the bees were confined to that part of the hive where the combs were, so the queen on entering had to stay among them, and neither they nor she could wander off into the vacant space. I have not had any such trouble, probably because all my combs are side to the entrance, and all nuclei or small colonies are kept at the front so that a queen on entering passes at once among the bees. Where the frames are the usual way it is probably good practice to use a tight-fitting division-board to restrict the space and then take pains to run the queen in right where the bees are. A tight-fitting division-board is something every beekeeper does not have. I know I have none, and it is not an easy thing to make in a hurry, nor unless one has just the right sort of lumber. But a perfectly satisfactory one may be quickly obtained in the following manner: Take a brood-frame with or without a comb, and wind about it a few times lengthwise a strip of burlap or other bulky cloth which is about as wide as the frame is deep. Push this into the hive, and it will meet all ordinary requirements.

With the smoke method of introduction any queen may be used, from a very young virgin to an old "breeder," and from a hive right at home, or from the mails after a trip half around the globe, but it is poor economy to put a virgin into a full colony. The queen may be put in at the entrance with one's fingers, or run in from the mailing-cage, together with the attendants. They will all be accepted. When running in from the cage, the latter should be placed wire side down or else have the wire well covered to exclude light; otherwise the bees of the hive may rush into the cage, plugging it tight. I prefer to remove the card covering the wire and place the cage wire side down; then I can hurry the queen and bees out by a gentle whiff of smoke under the cage. Great caution must be exercised when smoking bees in a cage, for they cannot move away from it if it is a trifle too hot, nor successfully ventilate if a suffocating amount is blown in. Use only the most gentle whiffs. If the cage is dark the queen and bees usually pass very quickly into the hive, the commotion therein seeming to hasten their movements. Ordinarily when running in from a cage I push the cage into the entrance (wire down), plug any space which may be above or beside it, and let it alone until I am ready to give the colony its first small outlet. But as I want all queens clipped I usually release the queen indoors, catch and clip her, and then run her in from my hand or from any sort of cage or little box. If the cage has no hole in the ends, it will be necessary to make one with a knife, taking pains not to injure the queen. Do not make the mistake of pushing in the candy end of the cage. This has been done, strange as it may seem.

Providence, R. I.

To be continued

[In Mr. Miller's next contribution he discusses the reasons why the smoke method is successful, requeening without dequeening, etc. Ed.]

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THE ENGLISH SEASON; EARLY THINGS EARLY AND THE SUMMER IN A RUSH

BY G. G. DESMOND

Apart from a rather slow January, and less winter brood than usual, we are having a phenomenally early season in England. Gooseberry blossom, due on the average on March 29, was ready to open on the 10th. Some cold winds checked it, but still it was nearly a fortnight early. Half way through April we got wonderful summer weather, and every thing seemed to come with a rush. The bush fruits were nearly finished, and we had laurel, cherry, plum, pear, apple, horse-chestnut (buckeye), dandelion, in the sort of procession you see at a well-contested horse-race.

With the old beekeepers, a May swarm was the *summum bonum*. This is the rhyme:

A swarm of bees in May
Is worth a load of hay.
A swarm of bees in June
Is worth a silver spoon.
A swarm of bees in July
Is not worth a butterfly.

Cottagers have been spinning yarns of April swarms for a great many years now, without much credence; but this year quite a number of beekeepers, ancient and modern, hived their increase from April 19 onward. I suppose that the date for an old straw hive to swarm is about the same as that of dandelion blossom. Last year we were picking dandelion heads for wine on May 21. This year, May 7 would have been too late, for all the heads had gone to seed.

Tickner Edwardes says that all honeys are outstripped in flavor by a blend of hawthorn and apple. "It is as rare and almost as priceless as the once famous Comet vintages. It is to be had only when the apple blossom and the hawthorn come into full flower together." This year we are having that, and, moreover, have got our bees up to supering strength in time for it. But then we have also at the same time hedge maple and sycamore, and sycamore nectar is great in quantity and poor in quality.

However, some people will get their apple-hawthorn blend fairly pure; and if it is not well ripened on the hive they will be disappointed with it. At any rate, this medley of blossom is bringing stocks to booming strength for the clovers which will begin to yield before May is out. Sainfoin is the chief of them in some hill districts. The first blooms will be out by the 25th for certain, and that and white clover will crowd our main honey-flow into about six weeks. When June is out we shall be seeing the end of a very fine honey year. Lime (basswood) will have followed clover, and there will be no more definite flow for those who do not go to the moors for heather. But surely such a summer will have another surprise for us with some flood of second blossom. At any rate we shall be able to get our requeening done quite early, and get nuclei plumped up for the winter, and the benefit of this unusual summer will not be exhausted for some years to come

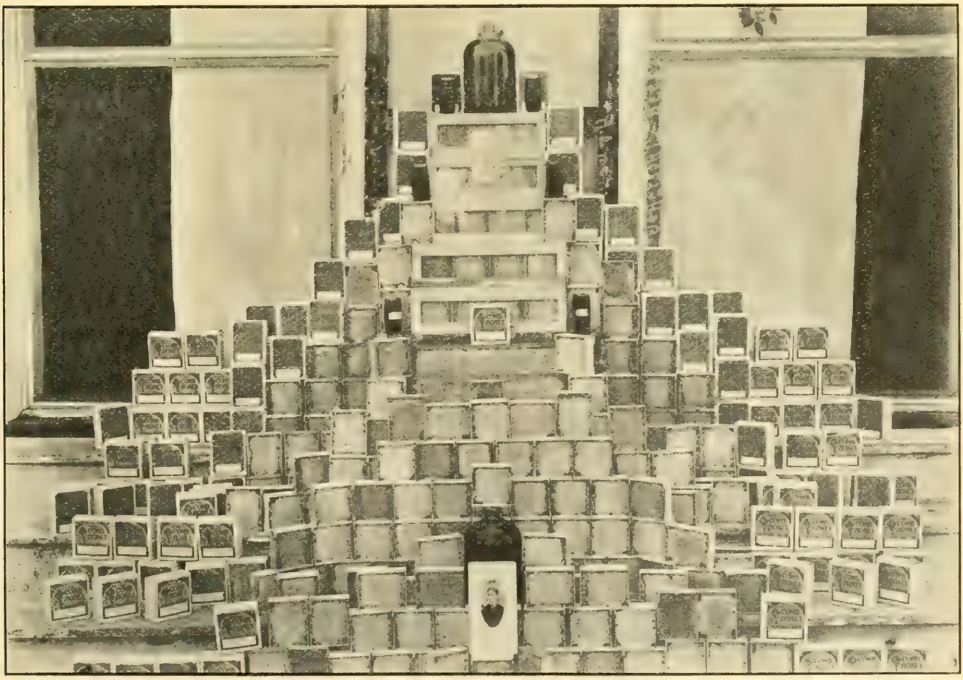
The greatest benefit we look for is the removal of Isle-of-Wight disease. I think it is going out under this hot sun. It means almost more than we know who have had apiaries wiped out by the malady itself. Some brother experts have told me that they are astonished at the amount of foul brood that accompanies Isle-of-Wight. I suspect that foul brood has a close connection with it at all times. When a stock dies in the cellar or on its winter stand without any definite symptoms, that is very often due, as Dr. Zander has pointed out, to *Nosema apis* or Isle-of-Wight disease. Other stocks are no doubt weakened by the same malady, and it comes out as foul brood. Some such basal infirmity, if not this very *Nosema apis,* will have to be tackled by Americans as well as Europeans before they get rid of foul brood.

Sheepscombe, Stroud, Glos., Eng.

A 96-POUND AVERAGE FROM COTTON

BY S. W. BOSWELL

I am a "counter-hopper" salesman by trade, and my side lines have been bees, truck-growing, and chickens. This is my third year with bees; and as the A B C says go into the honey business on the "tip-toe," I have followed its advice and have built up from two to twelve colonies. Next season I will branch a little.



Some of S. W. Boswell's cotton honey.

Lucille Miller, "Before and after taking" (a sting). Lucille is three years old, and a great lover of bees. She has been stung a number of times, but doesn't get scared. She usually says, "Papa, look what the bees did to me." I have a large yard of bees, and she likes to see me work with them.

G. M. Miller, Danvers, Ill.

There are 2400 acres under cultivation here, all cotton, so you will readily see that cotton is my honey-plant. Well, there are a few fruit-trees scattered around, and a little clover in places that the plow can't reach, that help out in early spring; but if any one were to ask from what source my bees get their nectar I would point with a proud finger to the millions of cotton-blooms.

From my twelve hives last season I took off an average of 96 lbs. of comb honey, and if I were to return all unfinished sections and apply the feeders I feel sure that my colony average would be considerably over 100 lbs. Now, I do not know; but it strikes me that I have made my bees do pretty well, and the drouth we have had too was against me to a certain extent.

The Danzenbaker is the hive here for the production of comb honey. I have tried other makes, but they all slip a cog somewhere, though every thing is seemingly all right.

I am sending a picture of some of my honey. The picture was taken in June as a booster for Jefferson County, Ark. The strained honey in the picture is some I obtained from leaky and broken sections. The honey shows up a little too dark in the picture.

Corner Stone, Ark.

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REQUEENING WITHOUT DEQUEENING

BY J. B. MERWIN

That Mr. J. E. Hand, p. 292, April 15, may not be misled in regard to my article on requeening without dequeening, p. 851, Dec. 1, I should like to try to make it a little plainer in some points. We do not try to introduce *virgin* queens by this method, and I have yet to learn of the old queen and the virgin queen fighting when reared by natural supersedure.

There is a similarity in nearly all things; and for example I will take a choice shade-tree in the latter part of summer when it is covered with a dense foliage. Nature has sent forth countless numbers of leaves; but wait until after the first frost, and they will begin falling—only a few at first each day, gradually increasing more and more until the tree is completely devoid of all its foliage, and, from all outward signs, appears dead. The next spring, should this same tree happen to be a little backwkard in sending out its buds we take it for granted something is wrong, and so with the point of our knife we raise a chip off the bark to see if it's not dead. If we are close observers we find a similar case of observations with our bees and their queens.

We will now take a strong colony of bees with a good prolific queen—one that has kept the hive well filled with brood throughout the summer, and at the end of the honey-flow we find the hive filled with brood and eggs. At this time the queen may be laying three or four thousand eggs per day; but now as the honey-flow draws to a close, and the bees bring in less honey each day, so the queen will begin to fall off in her egg-laying, and in a few days' time from her laying three or four thousand each day she will be laying perhaps two thousand and then one thousand, and only a few hundred eggs. Now, the bees observe this apparent failing of the queen, and about this time we happen along in our requeening manipulations and cage the queen for three days. What happens in that hive is now a guess. The egg production has been falling off each day more and more until now it has stopped abruptly, and those little workers come to the conclusion that there is something wrong, and start in to rear another queen. In my mind the age of the queen will have nothing to do in regard to their supersedure; and if friend Hand will try this out he will find it the rule and not an exception.

Prattsville, N. Y.

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TWO FENCES ON EACH SIDE OF THE SUPER

BY CLARK W. WILSON

Two years ago I bought over 200 N section-frames for 1½-inch sections, and last season I used them. In a ten-frame super seven 1½-inch frames separated by fences is full capacity; and, in order to fill sufficiently the space, two extra fences have to be used—that is, two fences on each side between the outside wall and section-frame, making ten fences to a super. I find this arrangement produces a remarkable effect on the actions of the bees in finishing comb honey. In every super of clover honey the outside frames of sections are completely finished before the center combs are capped. The reason is easily seen on examination of the super so occupied, for the extra fence on each side makes more room for a double thick wall of clustering bees, and they get in their work before the normal-spaced cluster. The finished sections average 14 ounces up to a full pound.

These sections and frames are unmistakably the best invention in this line on the market. The top-bar serves several good purposes. A most important one is that the sections are kept clean on all four sides, excepting, of course, the edges; second, the sections can be forced in together, and they stay " put " before and after the full sheets of foundation are fastened in by the wax-tube. The continuous use of a dozen blocks for three frames allows fast work with the tube; third, the frames can easily be used for chunk-honey production, which cannot be said of Danzenbaker section-frames.

Canastota, N. Y.

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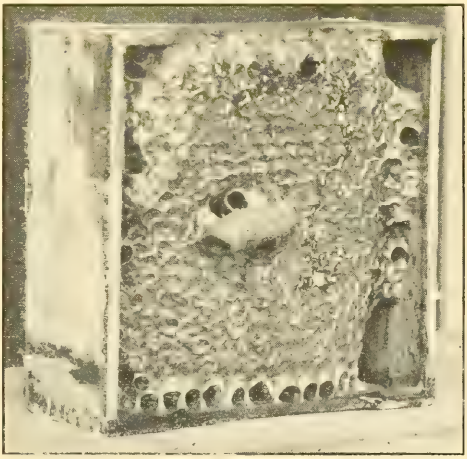
WASPS IN A COMB-HONEY SUPER

BY S. H. BURTON

I am sending you a peculiar-looking section of honey which you might photograph for GLEANINGS. If the cells are queen-cells, then the bees must have adopted a new material for queen-cell building, as the cells look more like the work of wasps. But I hardly think the bees would allow such things in the super long enough to construct these cells. This was taken from a hive that yielded a crate of fall honey, and nothing peculiar was noticed with the rest of the sections.



Work of mud-wasp. This was the only section in the super that showed any such trouble.

Washington, Ind., Nov. 22.

[It is probable that the cell shown was built by a species of wasp which gets into the super during a time when the bees are not occupying it.—ED.]

Heads of Grain from Different Fields

THE BACK-LOT BUZZER

There's one good thing about this system of government going on in any colony; th' police force is never just around the corner takin' a nap. When a great big good-natured bumblebee blunders into a hive, believe me, he comes out a changed bee.

Alfalfa in Kansas

When Mr. Root was in Kansas and saw alfalfa growing only on the bottoms, I am inclined to believe that he did not stop in the best part of Kansas. If he had come to the northeast and central part he would have seen alfalfa on the uplands, and almost none at all on the bottoms. The bottoms are given to corn here almost entirely, and the alfalfa grows and does finely on the highest lands. There are no streams larger than a spring branch nearer to me than 14 miles, and there are more than 100 acres of alfalfa within reach of my bees; but the trouble is, bees work on it but seldom. Many times I have seen fields purple with bloom, with hardly a bee to be seen. Occasionally I have seen a few bees working on it.

CATCHING STRAY SWARMS.

I should like to add a little to what I have read in GLEANINGS about catching bees. Last spring I set in the timber 20 old hives from which I had transferred bees. I had put in two full sheets of foundation with the rest of the frames fitted with inch starters. I put them in little patches of timber, and some in orchards where I had permission. I just put them on the ground or a rock or stump, with a good big stone on them. I put them out late in April and early in May, and by July I had 15 colonies.

I have a Ford car that I have had remodeled, taking off the back seat, and have a temporary rack behind so I can carry six or seven hives. I expect to catch more bees next summer, and have a whole lot of fun. I also got seven supers of honey from the 15 colonies caught.

Sabetha, Kan. FRANK HILL.

An Easy Way to Catch the Queen

As my system of swarm prevention calls for finding the queen at a time when bees are somewhat numerous, we must have a quick and certain method for doing it if many colonies per day are to be treated. The queen at this time is restricted to the lowest brood-body, above which is a queen-excluder that will stay her majesty when we smoke in at the entrance and tap the back with a hive-tool. In about a minute remove supers and cloth *en masse* on to an empty super directly in the rear. This is practical for us by June 20 to 26, as supers are not as yet very heavy. The bees will continue to pour above the queen-excluder, and settle thereon; and while they are so doing, raise up the brood-body and place an extra excluder between it and the bottom-board. Now quickly take off the top excluder and examine the under side for the queen. We find half of them here. If she is not there, place an excluder before the entrance to hinder the flight of bees coming in. Then examine the combs, which will be nearly clear of bees; and we can count for certain that we shall see her on the lower excluder, especially if metal only, as bees will slip through to the under side. It can be done quicker than said.

Cayuga, Ont. M. A. LISHMAN.

Ventilation in the Bottom-board

I should like to say a word about the ventilation of hives. I have come to believe that this is a very important matter, and one that has a great deal to do with the vigor and health of a colony. The entrance ought to be quite open, with wire cloth tacked along to make a small passage for the bees. Besides this a ventilating-hole in the bottom-board is a distinct advantage. It should be about three inches square, cut well toward the back, with wire cloth tacked over, and a wooden shutter made underneath.

The opening, which gives splendid ventilation, ought to remain open for seven or eight months of the year; and, furthermore, it helps the bees to keep the hive-bottom clean, for they drag the rubbish to the hole and push it through the wire cloth. One beekeeper, in 1912, told me that the only hives that kept free from foul brood in his apiary were those with extra-wide entrances and bottom ventilators, and he thinks this one of the chief factors in preventing swarms when running for comb honey.

Cheltenham, England. A. H. BOWMAN.

Horizontal Queen-cell Production

I read with considerable interest Mr. Isaac Hopkins' contribution on p. 697, Nov. 1, 1912, on the subject of horizontal queen-cell production. I did not like the original method as described in the Aug. 1st issue of the same year, as it seemed to me too wasteful. I select a three-story hive, leave the queen and four or five frames of brood in the bottom (the hive having ten frames of brood), and put the rest of the brood in the second story over an excluder. In seven days I move the bottom box to a new stand; drop the second box with the brood on to a bottom-board, and put the comb on that in its rim, and put the top story on that again. I do not cover any paper nor any thing else over the brood on the top side of the comb, which is standing on its tail, as I consider this one of the wasteful phases which I wish to avoid. Perhaps I am wrong in this. Like Dr. C. C. Miller, "I don't know."

Mr. Hopkins' previous article advised the use of a new comb. I tried this; but it sagged so badly that I lost a lot of the cells. Since then I have used a fairly old brown comb, and have also stayed it by wrapping wire around it.

I tried the system of scraping the intermediate rows out; but it took a lot of time, and I tried putting the comb on just as it was.

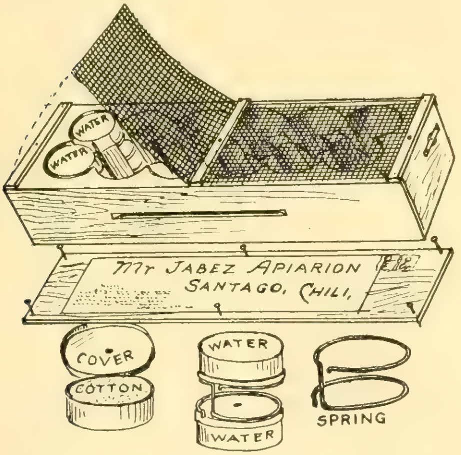
Perhaps this is not right, and perhaps I shall go back to the old system; but I have got from 25 to 30 cells on each comb, and I think that is satisfactory.

MAJOR SHALLARD.

South Woodburn, N. S. Wales, Australia.

A New Can for Holding Water in the Mailing-cage

We are sending under separate cover a sample of our long-distance cage with water-cans. We have had no trouble in keeping the cans sealed water-tight if a small amount of tallow is used with the wax. We have tried the tin tubes in the cages, but found on some of them it did not work unless the tube was made in separate sections so that in case the cage was standing on end while being sent through the mail the air would get in the other end, and the water would all run out in a short time; so we went back to the little cans; for, no matter in what position the cage may be, the water will not run out; and, in fact, when it is filled it takes a hard smash to throw even a drop out.



We are all looking for the best plan to send water with our bees; and the only way I see is for every one to give his best ideas on the subject, as the best will surely have to use it.

San Jose, Cal., Mar. 11. W. A. BARSTOW.

[The use of the little tin cans as here shown will be all right providing you can make them water-tight. We tried these to our satisfaction, using paraffine and beeswax to make a tight seal. But the trouble is, the bottles will do for a few trips; but when queens are sent out in quantities it will be found that they will leak. The only thing that we ever found effective is the tin tubes with corks fitting tightly. Just above the cork, which should be at the bottom, is a small perforation. Through this is a small string that acts as a wick. To overcome the objection of the bottle being wrong side up, we put in two bottles, one on each side of the cage, so that, no matter which way the cage stands, either sidewise, endwise, or flatwise, there will be one perforation at the bottom, or where the bees can get at the water. So far this arrangement works the best of any thing we have tried. Small homeopathic bottles, with a slot in the cork, and a string in the slot, may be used. But there must be two bottles to the cage, and the ends reversed so that all the bees can get water at the slot in one of the bottles. Care must be taken not to make the slots in the corks too large. They should be no larger than will admit a common string without pinching it. Unless a string is used the water will leak out too fast.—ED.]

What is to Blame for the Great Mortality of Queens Mailed in New Zealand?

I notice that you have gone back to the water-bottle for mailing queens. Since I started beekeeping some years ago I have spent money on imported queens, all of which have arrived dead. The last I got were posted to a ship's purser at San Francisco, and he kept them in his cabin and posted them on to me at Auckland. He wrote and said they ceased to show signs of life after they left Papeete, where they had a few days of hot weather. Years ago beekeepers could depend on getting over 50 per cent of queens alive; but I think they had water in those days.

Mr. Isaac Hopkins, late Government Apiarist, is always putting the present-day mortality down to the fact that the larvæ are transferred. I am tired now of sending money for dead queens. For the New Zealand post, to save delay, they should be marked "queen bee, not dutiable."

Dewauchelle, N. Z., Feb. 12. W. B. BRAY.

[The loss in sending queens to New Zealand, we do not think, is any greater to-day than it was twenty years ago. Only a small percentage of the queens ever went through alive, and that percentage was and is so small as to be discouraging. We are in hopes, however, that the new water-bottle scheme as explained in the preceding footnote will solve the problem to a great extent. We hope to conduct some exhaustive experiments with water-bottles this summer, trying out some cheap queens or merely bees. But experience has proved that the candy must be soft, and that the water-bottles must be so constructed that they will not leak *en route*.—ED.]

How and When I Make Use of Smoke

When I have to examine a hive thoroughly by taking out all the frames or to shake off the bees from combs, or to unite bees of two or more colonies early in the spring or late in the fall, I find it necessary to administer a few puffs of smoke from the top of the frames only. Using smoke from the entrance being unnecessarily distressing to the bees, I never do it.

During the honey season I do not make use of smoke, and often go without a veil. In midsummer, from July to September inclusive, when the temperature is high, say from 80 to 90 F., which differs little from that of the hive, the propolis turns soft, and the bees do not mind the exposure, and do not get irritated except when they are very roughly handled (manipulated), or under inconvenient circumstances such as robbing, etc.

Nicosia, Cyprus, Sept. 5. M. S. DERVISHIAN.

[Ordinarily it is not necessary to use smoke at the entrance. A little puff over the tops of the frames during the middle hours of the day will be quite sufficient. If there is any occasion for opening hives on a chilly day in early morning or late in the evening, or at night, smoke should be used at the entrance, and a liberal amount over the tops of the frames. In fact, when one has to work with bees when it is a little dark he will find it necessary to use considerable smoke. Little and often is better than to use a large amount and then stop.—ED.]

Swarming Bees that were Cross

About the last of August I had two very large swarms come off, and I never saw bees so cross. I used water to make them settle low, and they literally covered me while they were in the air, stinging with all their might. I had a very hard time to get them hived. I had to go into the woodshed three or four times to clean the bees off my body. I was stung about 20 times, as they crawled in every crevice in my clothing. What caused them to be so cross? They are Italians, and were working on buckwheat at the time.

Ossineke, Mich. F. G. Pennell.

[It is not common to find bees cross when swarming, for they are usually pretty well filled with honey so that they are not likely to be irritable. Occasionally, however, something happens to infuriate them, and then they will sting. At such times it is pretty hard to point to a definite cause.

Possibly the bees of the parent colony from which the swarm issued were more irritable than others which you have. Several have reported, moreover, that bees are often pretty cross while working on buckwheat. Why they should be crosser then than at other times we do not know. If any robbing had been going on, or if the honey-flow had suddenly let up, the explanation would be simple.—Ed.]

Foul Brood in Kentucky

The losses resulting from carelessness of indifferent beekeepers are the only ones of any consequence. Very heavy losses have occurred among those who had foul brood, and did not shake. This old-fogy idea that foul brood will not cause a great per cent of loss is absolutely absurd. Kentucky is badly in need of a law that will compel every man who has disease to get rid of it. Just so long as one man is permitted to have foul brood, every one near by will be more or less bothered by this deadly disease. Let us as beemen, in the absence of such a law, resolve to do all we can to eliminate this malady.

Brooksville, Ky., April 7. L. F. Rice.

Sliding the Super Forward to Let the Bees Escape

On p. 309, April 15, Mr. Ewen wants his escape in the center of the board. I used an escape-board when the first dovetailed hives came out—just a plain board on top of the new super (or extracting-frames if extracting), then the honey-board, then the full super, then the cover. The bees escaped through an opening made by shoving the full super over the front end of the honey-board ¼ inch, or just enough room to let the bees pass out and down to the entrance of the hive. We put the boards on in the late afternoon or evening, and the next morning the full supers were clear of bees.

An opening through the front strip of the escape-board is all that is necessary. This method will not work if the bees can not all get inside. After escaping, if crowded for room, they will cluster on the front end of the hive, and keep possession of the full super.

Portland, Oregon. Charles Rusk.

[During a honey-flow this plan will work, but robbers would take possession during a dearth.—Ed.]

Bees that are Habitual Robbers are the Ones that Spread Foul Brood

I was interested in Mr. Doolittle's article, page 710, Oct. 15, 1913, as to desirable bee traits or natural characteristic qualities of different colonies; but he did not touch upon one vital point—*robbing*—which to me meant very much when it comes to handling American foul brood. Referring to the question of immunity from foul brood, it is the colonies that get right out in the fields that are immune, not the ones that are for ever pilfering and prying around at all the hive entrances. They are the ones that continually keep spreading diseases. I would suggest that one or two decoy hives be set out with a few old combs in them, and bee-escapes turned in, so that in the evening the bees thus caught robbing can be sprinkled with flour to enable the beekeeper to tell what hive they came from. He should then mark such to have a "smoked-in queen" (by the way, that trick is worth dollars).

The black bees are natural robbers, and that is the reason why they are so hard to handle when foul brood gets a start. Some individual colonies of any races are natural robbers, just as in the human family. Breed from the hives that get right out into the fields, and show results in the hive, and add all the other good traits Mr. Doolittle speaks of.

Colo, Iowa, Jan. 1. D. E. Lhommedieu.

Brood-comb Clogged with Honey Before the Main Honey-flow

Complying with Dr. Miller's wish, p. 244, April 1, I will say that supers were on. Some of them had a few bait sections; some two, some four, etc. These bait sections were filled in the strong colonies the same as were the frames in the brood-chamber. In the weaker colonies they were untouched.

Our location provides a long period of warm weather from Feb. 15 to June 15, during which time there are intermittent sources of nectar, beginning with willow, then fruit-bloom, followed by some varieties of sage. The altitude is high (4800 ft.) and dry, with an almost cloudless sky. This dryness shortens the time that the sage bloom is in its prime or nectar-producing stage, and, moreover, the flow is not continuous enough for comb-building in sections, but increases as the season advances, so that the brood-chamber becomes clogged. Some of these frames are fully cappped 15 days before alfalfa.

This year the brood-rearing started two weeks earlier. There will be but very little if any old honey left in any of the brood-chambers, and all colonies are strong in young bees.

Were it not for the abundant stores from last fall, we would have had to feed at this time. I have planned to have new combs drawn from full sheets during the time the clogging takes place this year by inserting foundation between brood.

Bishop, Cal. Geo. M. Huntington.

Queen Goes to Another Hive

I once introduced a breeding queen to a small colony. She did finely for about four weeks, when she suddenly disappeared and the colony refused to build cells, even to rear themselves a queen. In about three weeks I saw the same kind of bees flying from another hive two hives from there, and on examining it I found that breeding queen doing good work. Has any one else ever had such an experience?

Clarkston, Mich. W. L. Lovejoy.

Honey 40 Cents per Gallon in Jamaica

It is to be regretted that honey has fallen so low in price this season; 40 cents per gallon for white and 30 cents for amber is the best price offered. Many beekeepers just let the honey remain in the hives for the bees to consume. Up to last year honey was eagerly bought up at from 70 to 75 cents per gallon.

F. A. Hooper.

Four Paths, Clarendon, Jamaica, April 20.

Death of Josiah Eastburn

I am sorry to inform you of the death of Mr. Josiah Eastburn, proprietor of the Locust Grove Apiary, Fallsington, Pa. Mr. Eastburn was the leading authority on apiculture in Bucks County, where he was engaged in apiculture for about 30 years. He was a man of upright character. His widow survives him.

Elizabeth, N. J., June 3. E. E. Guy.

A. I. Root OUR HOMES Editor

Honor thy father and mother; which is the first commandment with promise; that it may be well with thee, and that thou mayest live long on the earth.—EPH. 6:2, 3.

I hold in my hand a book of 480 pages. The title is, "Old Age Deferred," by Arnold Lorand, Physician to the Baths, Carlsbad, Austria. The book is published by the F. A. Davis Co., Philadelphia. The price is $2.50 net. Dr. Lorand is evidently in close touch with the most prominent physicians and scientists of the present day. The book contains much that is very good; and I am glad to see that it is very closely in line with Terry, Fletcher, and others who have been teaching us forcibly the advantage of less eating and of a thorough chewing of all we do eat. I cannot take the time just now in this Home paper to make a résumé of the book. On almost every page, the author speaks of the harmfulness of alcohol, tobacco, tea, and coffee (the book is just out, the date being 1914); but notwithstanding all this, the author closes up his chapter headed "Deleterious Action of Alcohol," as follows:

> But we again repeat that there is not sufficient strictly scientific evidence as yet, to prove that small quantities of alcohol (especially beer or wine, and possibly whisky) are deleterious to the majority of adults; those who cannot stand even small quantities will be best without any; but we fail to see why a working man, when he comes from his daily labor, should be forbidden to take his glass of beer.

Then, again, in the chapter on tea, coffee, and tobacco, he closes up by saying:

> We do not think that two or three light cigars a day, but never before meals, can do any harm, save in exceptional cases.

To my mind it is not only lamentable but astonishing that a man of his experience and broad education in regard to almost every disease known should be so stupid (begging pardon) as to forget or ignore the fact that *moderate* users of both liquor and tobacco almost invariably become *inveterate* users before they die. Why, the great distilling companies—at least two of them—recognize this so fully that they propose to sell a list of the names of their patrons to a Keeley-cure institute with the remark that, sooner or later, their customers (moderate users, of course) will become patients at the Keeley institute.

The author of this book admits in his writings that he is not a married man. I may be a little peculiar; but to my notion, no doctor is fully qualified to advise and treat husbands and wives until he is a married man himself. Perhaps I had better modify it by saying that any doctor 25 years old should be a married man; and, God permitting, he should have some children—say four or five, or, better still, half a dozen; then he will know how, *by personal experience,* to take charge of both husbands and wives. I would suggest, also, that his wife study medicine, and go with him a good deal, especially when he has women patients. He had better have his office so close to his home that the good wife can be called in at almost any minute.* Now, Dr. Lorand tells us he is not married. I wish he might be equally frank with his readers and tell them whether he uses tobacco, and, say, a glass of beer occasionally that he recommends to the "workingman." I suppose he would class me among the "faddists," especially when I say the family physician should use neither alcoholic drinks nor tobacco. Most surely the doctor who sees the evils of tobacco and drink, as this man does, and talks about its effects, not only on the present generation but on the generation to come—*surely* such a man should be able to come before his patrons and say, "I practice what I preach," or, in other words, "I, your family physician, take my own medicine, or the medicine that I daily use."

This good doctor is frank enough to declare that the man who asks a woman to take him for better or for worse should be able to show her a certificate from a good physician in regard to his habits, and freedom from disease. Just recently I heard the agent of an insurance company say that every young man when he asks a woman to have him should be able to show the good lady an insurance policy on his life. This would be valuable for her for two reasons: First, because he is wise enough to have something laid up for a rainy day; and, secondly, that the insurance doctor or physician employed by the insurance company has made a thorough examination, and guarantees that there is no disease about him that might pollute her own pure self. Now, do not call it another of my cranky ideas if I suggest that this good man shall also be able to tell her he is a member in good standing in some church. So much for a preface to what I have been moved to say to old people like Mrs. Root and myself.

So far, may God be praised, Mrs. Root and I have been able to take care of ourselves, and occasionally, too (thank God), to help a little in the care of the children and grandchildren. But the question is coming and creeping upon us day by day, "What shall we do should the great Father permit us to remain here long enough till somebody has to care for us?" While this matter is in my mind I keep thinking of Jesus' words to Peter. Let me quote:

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* By the way, in my opinion every minister of the gospel, as soon as he is of proper age, should also have a wife, and, a kind Providence permitting, children also. If he is to tackle the sins and crimes that afflict humanity, he should be a parent in order that he may speak from the father's standpoint.

> When thou wast young, thou girdedst thyself, and walkedst whither thou wouldest; but when thou shalt be old, thou shalt stretch forth thy hands, and another shall gird thee, and carry thee whither thou wouldest not.

When we get so old as to be in some respects a burden to our good and devoted children (two boys and three girls) are we going to be a *trouble* and a *worry* to them? Shall we become cross and cranky because we cannot have every thing just *exactly* our own way? How many of you whose eyes are resting on this page have thought of that? Look about you and see. Consider the old people whom God has permitted to be perhaps eighty or even ninety years old. Are they usually, all of them, still a blessing to the world? Are they helping along the great wave of progress toward God's kingdom? Old people have notions—queer notions. I feel it coming on me already. They get to be deaf, like myself. It is not only a task to make them hear but to make them understand; and they are forgetful. You have to tell them things over and over. Saddest of all, they sometimes lose their mind, and become idiotic or imbecile. I have talked, perhaps, in a joking way about living to be a hundred years old; but I am hoping and praying and *striving* to avoid any thing that might lead me to be a burden on society or on my friends and relatives.

The question has come up half a dozen times quite recently as to what shall be done with old people as they become helpless and hard to take care of. Shall they be sent to the county infirmary? Years ago we could hire a man or woman at a reasonable price to stay with such old people; but it is a far more difficult matter now. Suppose some old father or mother, or father-in-law or mother-in-law, becomes a burden on some good woman who already has a family. Shall she wear herself out and go down to a premature grave just because the family or the people are too proud to let the old lady or the old man be cared for by the county, or, say, at some "old ladies' home"? I am not going to answer this question. The old ladies' homes have done wonderful things, to my knowledge, in taking good care of old ladies during their declining years.

There is one point I did not touch on as I intended to. Suppose this old mother does not recognize a single one of her children or grandchildren. Suppose she keeps saying over and over, "I want to go home; I want to go home." Suppose, if she is not watched every minute, she will get away so the whole neighborhood has to turn in and hunt her up. If she does not know any of her friends or relatives at all, would she not be just as happy and contented—perhaps more so—in an old ladies' home where she could have the care of experienced and well-known trained nurses? But, hold on a bit. There is another side to this. The papers tell us of hired help in these asylums for old people who have not only been guilty of abusive language but even of blows and kicks and bruises because these old friends have queer and unreasonable notions.

Our text says: "Honor thy father and thy mother." We have just been talking about living to a good old age; and God's holy book tells us one of the *requirements* for longevity is to honor our father and mother; and I take it that it means other people's fathers and mothers as well as our own. What are we going to do with *all* the fathers and mothers? What *are* we doing with them? What *will* be done with them? I said to myself recently, "A. I. Root, what are *you* going to do when you get to be too old to take care of yourself? What are you going to do when the good wife gets to be too old, or when God has taken her away so that she can no longer spend her life and strength in anticipating your every want?" May God help us, when that time comes, to practice what we preach. I will tell you one thing I think I shall want; and that is, a garden and some chickens, just as long as I am able to work in the garden with a light little hoe. Right near the garden, and adjoining it I want a comfortable place to take my nap. In fact, I have such a garden and such a place to sleep already. When it is too cool I have a little "sun parlor" where I can lie down in the sun.* When it is too warm in the sun parlor I have a cot in a cool basement just back of the sun parlor. So you see when I am chilly I can lie down in the warm room. When the weather is oppressively warm I have a cool retreat. Mrs. Root fixed the cool sleeping-place for me yesterday, June 8, for it was 94 in the shade a good part of the day.

Now, elderly people are apt to get untidy.

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* By the way, let me tell you that I never go into that sun parlor or cooler room unless I am tired out from muscular work in the garden, or with letters and correspondence in the office. I make it a point never to think of taking a nap because I have nothing to do or because I feel "lazy." My naps are taken when I am pretty well tired out and *need* rest; and it is certainly a benefit to me to take a little rest before I sit down to dinner. Sometimes when business calls I eat a meal when pretty well tired out, because there is no time for napping; but it does not do me nearly as much good.

Yesterday I happened to meet a man who pretty much all his life had been the pink of neatness. He is now over 80 years old. I was surprised to see some spots on his clothing that I think were made by dropping his food. Then I glanced down at my own vest and pants; and (I am sorry to say it) there were some stains there also. A spotless clean napkin is by my plate at every meal. By the way, perhaps I might confess that one reason why it *is* so "spotlessly clean" is because I do not use it. I am either too busy or else I forget; but I am going to try hard from this day on to use that napkin and keep my clothing clean in other ways, so I shall not worry the good wife. Old men are very apt to become careless. They neglect going to the barber's. Did you ever notice how much neater and brighter some old gentleman looks after an expert barber has fixed him up? Well, I have decided I must go to the barber's oftener. I will try to use that good-sized nice clean napkin, and wash my hands more frequently, and I will spend more time in cleaning my feet after I have been out in the muddy garden. I will use the broom that stands by the doorway of my sun parlor oftener so as to save the dear wife the trouble of following after me. I will try to have my places of work more decent and in order than I have done. If by some blunder or mishap the children or grandchildren make a mess of my work I will try to avoid complaining.

There is a bright sweet "little toddler" who especially likes to share my apples and grapefruit at about five o'clock every afternoon, and lately she is quite fond of being with me out in the garden; but she seems almost sure to put her little chubby foot on a sesame plant or a fall-bearing strawberry that I am trying to nurse back to life. Shall I go and tell "Carrie Belle" that I can not have her little girl blundering around in my garden? God forbid. I will tell you what I am going to try to do. Perhaps I have done it already. I have said out loud, "May the Lord be praised for the brightness that Carrie Belle has already shed over my life since God gave her to us; and may the Lord be praised that this bright little prattler, another edition of Carrie Belle, has learned to love—perhaps just a little—the cranky old grandpa, even if he does scold her sometimes for stepping on his precious plants." Does not that beautiful little text fit in right here—"Ye are of more value than many sparrows"?

Now, dear friends, all of you who think that you are growing old, and perhaps have been afraid you might be a burden sometimes on the younger and busy world, shall we not, each and all of us, try a little harder to hold fast to the Bible promises? Shall we not try a little harder to be *easy* to get along with—easier to *let go* of old things and to take up with new things? Shall we not be more careful about criticising the younger ones who make so much of baseball games, summer outings, county fairs, Fourth of July, possibly circuses and animal shows —things we no longer care for? Of course, it is not incumbent on us to go to these great gatherings unless we choose; but let us try to learn wisdom from the past.

The book I have spoken about—"Old Age Deferred"—puts strong emphasis on the importance of eating sparingly when you are obliged to give up severe manual labor; and it agrees almost exactly with Terry in saying that old people who have given up heavy bodily labor should eat but little meat or none at all. Dr. Lorand recommends milk very strongly for old people, as it is ready for the stomach and bowels without being obliged to chew it "everlastingly;" and I do think many old people would not only live longer but hold their powers much better if they would eat only two hearty meals a day, and, say, apples or some fruit that seems to agree with them for a light supper.

Now, once more, who is there among you who is not only going to strive for a good old age, if God so wills it, and at the same time hold our reasoning powers, and, above all, *our religion*, so that we may be of *some use* to the world instead of a hindrance, up to the last?

Just recently I spoke of the boy who came so near drowning, and said that, if he grew up to be a cigarette fiend or a victim of intemperance, saving him from drowning would amount to but little or nothing. In fact, he had better have died an honest and innocent boy rather than to have become a criminal. Let us now apply this same reasoning to old age. We are talking about living to be a hundred years old; but, seriously, what is the use or what does it amount to if we keep on living a life of uselessness or imbecility—a burden to our relatives and to the public? God forbid that I should teach or insist on any thing of the kind. We had better be dead and out of the way than to live a life of useless self-indulgence. But, may God be praised that we have quite a number of examples of old men and women who have been a blessing to the world, even to the last moment of a good ripe old age. I would suggest Benjamin Franklin, 84; W. E. Gladstone, 89; Cornaro, who wrote a valuable book when he was ninety years old. Terry has been particularly strong in this matter. In fact, the title of his book is, "How to Keep Well and Live Long." If we keep well as long as we do live, we shall certainly be of some use to the younger generation. How often have I seen an old grandmother who interested the children and looked after them in such a way that, when God took her, she was missed most keenly by every member of the household, even though she may have passed her fourscore!

After the above was put in type I sent a proof to my friend T. B. Terry, and offered to send him the book if he had not already seen it. Below is his reply:

Dear Mr. Root:—I haven't seen the book you refer to, "Old Age Deferred." When you are through with your copy I certainly shall be glad to get it. But, as I understand from your article, Dr. Lorand allows a moderate use of liquor and tobacco; and I have very little confidence in any man's teachings who takes such a stand. With such, to be popular is more than to be strictly truthful and helpful to humanity. Of course, one can get some good thoughts from such writers; but, you see, one does not dare accept any thing they say as true which he does not know himself is so.

Friend Root, I do not believe for an instant that God intended we should be helpless or lose any of our faculties in our old age. I do believe that we bring all such so-called old-age infirmities on ourselves by wrong habits of life. They are punishments for natural laws violated. The older I get, the more I study and experiment, the more certain I am of being right. Ten years ago it would hardly have done to say this. But the world is waking up to the truth at last.

Mr. Root, I do not believe you half realize how much good your articles are doing. I always like to get the views of an outside friend. So let me give you mine by saying you are doing better work than you could 20 years ago. And why not? You have had more experience, your business cares are less, and your head is as clear, thanks to right living. Ten years from now your writings will be worth more to humanity than they are now.

I have now had a four-weeks' vacation and "letup," and outdoor work, for the first time in 25 years. Really it does seem as though I felt better now than when I was 40. I hope you and your good wife are feeling as young and vigorous as I do—yes, more so.

Hudson, O., June 17. T. B. TERRY.

Dear friends, I have received many kind words—in fact, many kind and encouraging words are coming every day; and I frequently say to Mrs. Root, "Sue, I have had a letter to-day more encouraging than any heretofore;" and I think I can say the same in regard to the closing sentence to friend Terry's letter. May God give me grace and physical strength and inspiration to continue finding something helpful to all our readers, young and old, for ten years to come.

A LOVE-LETTER FROM ONE OF OUR SUBSCRIBERS

Some time ago (p. 473, July 1, 1913) I mentioned that one of our Anti-saloon League workers, Mayor White, of Barnesville, Ohio, during his temperance talks, read us a "love-letter" from one who had been fomerly a saloon-keeper; but after his conversion to the Lord Jesus Christ he turned and wrote a *love-letter* to the man whom he used to fight. Well, I have received a love-letter too; but it comes from a friend, and one who has always been my friend, so far as I know. Here it is:

Dear Mr. Root:—

"I lang hae thought, my youthfu' friend,
A something to have sent you,
Tho' it should serve nae ither end
Than just a kind memento;
But how the subject theme may gang,
Let time and chance determine;
Perhaps it may turn out a sang,
Perhaps turn out a sermon."

I love you, Mr. Root. I have been acquainted with you for only about five years; but from the first number of GLEANINGS that I received, began an affection that has increased with the years, and bids fair to last until you reach that hundred-year mark that you have set for yourself. The beautiful simplicity of your life appeals to me, and shows that you give the Lord not only lip service but also heart service.

For eight years I was a salesman for a wholesale grocery house in Atlanta, and left them only last January to go into the grocery business for myself. Kirkwood is a suburb of Atlanta, being only four miles from the city.

For the past five or six years I have been interested in bees, and have studied them pretty thoroughly. They are intensely interesting to me; but since I am now in business for myself, and am closely confined, I have not the time to give them. From reading Mr. Frank Benton's writings, I became interested in the Carniolans, and have kept them and their crosses with Italians. I much prefer the Carniolans, as they are gentler, have a large force of bees early in the spring, and don't stick up the hives as the Italians do. They do not swarm any worse for me either, in spite of their reputation to the contrary.

I run for extracted honey. I have only seven hives, and not the time now to give even that number the proper attention, and I have had only two swarms this year. I hived both right back in the old stand after raising the brood-chamber over the second story, and putting an extra set of combs in its place. Of course, I cut out the cells, and they went to work with a vim.

There was a plot of red clover about fifty feet square near my home, and I was surprised to see my bees hard at work on the blossoms. I thought that it is very unusual for bees to work on red clover.

I have a Novice extractor, but I have never learned to use it without breaking the combs. I use wired foundation; but even combs three or four years old break in the extractor. I am now selling the honey in my store at 17½ cts. per pound for bulk comb, and I get 25 cents for a pint jar of extracted. The firm for which I sold groceries for eight years handle Wilder's honey in the pint jars, and I had lots of experience with it. Privately, in spite of his plan of exposure to the sunlight, it granulates badly, and I have bought many a case of 12-pint jars from retail grocers for $1.50 after they had paid $2.60 per case for it.

I carried five colonies and two three-frame nuclei through the past winter. The five were chock full of goldenrod honey, and had a big force of bees all ready to go to work in the spring. I have taken about 150 pounds of bulk comb and extracted already, and have not touched several of the supers. The honey is from poplar, locust, blackberry, daisy, and fruit. It is dark, but it is very finely flavored, and all say it tastes like the "honey father used to make." The past two years are the only years that have given me any surplus; but I think that I, like most beginners, monkeyed with the bees too much, and did not give them any time to make honey. I find that the more I leave them alone, within certain limits, of course, the better they do.

Last month I set some perfectly fresh Indian Runner duck eggs under a hen. In three weeks one little duckling hatched, and one week later the other eggs hatched. How would you account for that one? It is a freak of nature. The little fellow seemed perfect; but as I had no way to keep just one, I gave him to a boy.

Like you, Mr. Root, I believe in simplicity of diet. Honey is the only sweet I eat, and I eat very little of that. Two meals a day are enough for me, and there are very few things in my store that I eat myself. A little fruit and vegetables are enough for me with graham bread and corn muffins. Unlike Terry, I find vegetables are better for me than fruit. Acid fruits are not at all good for me.

When I was 25 years old I was superintendent of a cotton-mill, and a fit candidate for a consumptive's grave. In fact, I had to give up my work and live in the open air. I began to study the question of diet and proper living generally, and now at the age of 33 I am strong and ruddy, and have not taken a dose of medicine in years. Light eating, freedom from constipation, and fresh air, have done the work. I sleep out of doors every night in the year. I believe that diet is the most important question before the people to-day. Diet has a great influence on the morals and also on the religion of the people as well as on their bodies. I believe that it is possible to live so that there will be no sickness or bad feelings. But if sickness begins to come on, a full enema once a day for several days, and about a two or three days' diet, with lots of pure water, will generally forestall the doctor.

As I said before, Mr. Root, I love you. I love the work you are doing. I am with you in spirit in all you do for the betterment of the people. I am "agin" the liquor interests and the patent medicines and the quacks and the nostrums. I am with you in your efforts to let the light shine in the midst of the darkness in which such a large part of us live. I pray that you may live long, and that you may continue to "turn on the light." It would be a great pleasure to me to know you personally.

Kirkwood, Ga., June 3. HAL RIVIERE.

In regard to honey in pint jars containing a piece of comb honey, our people have given up putting comb honey into jars or tumblers. I rather protested; but our "honey-man," Mr. L. W. Boyden, declared that after the honey candied nobody would buy it, and there is no way of restoring it to its original shape. I know friend Wilder has been putting up and selling not only tons but carloads of honey in this shape. I talked with him about it not long ago; but he said that in the Southern States, where there is seldom or never any freezing weather, there is but very little trouble. I am surprised to learn that your extractor breaks the combs when they are properly wired. If they are filled very heavy with thick honey I would throw out a part of the honey and then reverse and take the other side. This, of course, takes some time, but it usually prevents injury to the combs.

In regard to the one duck hatching in three weeks, that one egg must have been sat on by some accident, or exposed to heat enough for about a week to cause the germ to start. During the past winter I gave a Leghorn hen 15 eggs. Not an egg had hatched at the end of 21 days; but as the egg-tester showed live chicks I let her keep on. She hatched six chickens in just about 26 days, and might have hatched more of I had not got tired of waiting, and "broke her up." I have never been able to account for this.

My good friend, some of our readers will smile when you tell us you eat very little of the things *you have for sale.* It reminds us of the doctor who would not take his own medicine when he got sick. I rejoice to know that you are getting your health without doctors or drugs, and extend my sincere thanks for your very kind words; but I wish to add, my dear brother, that I hope it is the Christlike spirit I have faintly shown that you "love," rather than my poor self; and may God help us all to show forth at *all times* that spirit of peace and good will that ought to "shine forth" from the face of each one of us.

OUT OF HEATHEN DARKNESS AND INTO THE LIGHT OF THE GOSPEL.

The following should be read because it comes from a son of the late D. L. Moody.

Dear Mr. Root:—As you have given to the Northfield Schools during the past season, I am taking the liberty of writing to report upon the work of the current year, and trust that you will not view this as in any sense an appeal.

In September the Northfield Schools opened with the largest attendance in their history, aggregating 1250. About 200 were new students, and those had been selected from nearly a thousand applicants, the choice being based upon need and merit. The result has been an exceptionally earnest, purposeful class of young people, and I have never before realized so much as during the recent months the privilege which is given to us here in ministering to young men and young women of this class.

It would be a great joy to us to be able to share with our friends who are making Northfield possible many of the individual experiences which we have with our students. To know of the struggles and privations which some of our young people have experienced to come to Northfield; to watch with interest the development into efficient and promising students of those who have had few opportunities; and then to know of their going into the world imbued with high ideals and carrying the traditions of Northfield with them, is a pleasure which we should be glad to share with our many friends.

Of our graduates at Mount Hermon last spring one is a man who gives promise of a great career among his people. He is a Liberian, having received his early education in the Methodist Mission in Monrovia, where his gifts were recognized. Later he came to Mount Hermon, where he won a high standing for scholarship. One of his teachers assured me that he had the best mind of any student that he had ever taught. This testimony was of greater value as it came from one who has been teaching for many years. The student took prizes in chemistry and physics, and gave his commencement address in Latin. He is now a freshman in Harvard University. His career is the more remarkable in view of the fact that, twelve years ago, he was uncivilized in the jungles of Africa, and in this short time has accomplished so much. His earnest purpose is to return to his own people, and during holidays he has been working upon his native lingo, reducing it to written form, and, with the assistance of a teacher, translating from the Greek Testament into this language all of the parables of our Lord, and the first few chapters of the gospel of St. John. This is one of many cases for which it is our privilege to work at Northfield. Sincerely yours,

East Northfield, Mass., Dec. 25. W. R. MOODY.

HIGH-PRESSURE GARDENING

NEW POTATOES AT 60 CENTS A PECK.

The above is the price we pay at our grocery here in Medina for new Red Triumphs—the same kind that I grew down in Florida, and these were *probably* shipped in from Florida or some of the Southern States. But even at 60 cents a peck they were not first-class. They were all rather small, and some of them quite small, and quite a few of them were imperfect. A year ago I talked to you about growing a few potatoes in your back yard so as to avoid being obliged to pay the extravagant prices that generally rule in June. When I got back from Florida the first thing I did was to plant some potatoes; but just as it has often happened before, I could not get seed of the Red Triumph. In fact, I could not get any seed of early potatoes of any sort, with the exception of one seedsman in our town who had a few potatoes that were brought in by some countryman who called them Early Ohio; but the seedsman was frank enough to say he did not believe they were true to name. I planted some of these at once; but as my ground was not in proper condition they are now, June 13, only just showing blossom-buds. Some of you may say that if we try to grow a few extra-early potatoes in the back yard it may *cost* us 60 cents a peck; but I am sure it need not. As a proof, a good neighbor of mine, Mr. M. D. Kimmell, just a few minutes ago said if I would go down and take a look at his garden he would give me a nice mess of new potatoes. He said they were Burpee's Extra Early.

Now wake up, friends, you who love to make garden, especially quite early in the spring, and who also love short cuts between producer and consumer; turn in and help *me* practice what I preach. Terry has finally decided potatoes to be the most wholesome vegetable; in fact, it comes next to home-ground wheat. I think potatoes and wheat of our own growing, and home *grinding* of the wheat, may be a large factor in attaining an age of a hundred years, and a fair use of all our faculties.

Later.—After the above was put in type I came across the following in the Jacksonville *Times-Union:*

> Within a period of ten days St. John's County shipped 1200 cars of Irish potatoes, and then some people wonder if there is any thing in farming in Florida.

Sure enough! The above comes in nicely with people who are inclined to run down Florida. Just think of it! 1200 carloads shipped from one single county, and that in a period of only ten days! Good for Florida!

BUGS ON SQUASHES, ETC.

On Sunday morning, June 7, although I was out just about sunrise, I found a swarm of little striped squash-bugs had pretty nearly riddled my thrifty Hubbard squashes that I started in the hot-bed. They were just swarming over the dozen hills. I did not look around for any covering or screen, but caught the bugs, as far as I could, before they flew away, and mashed them between my thumb and fingers, letting them drop all around the ground. Then I went to the next hill and did the same thing. By the time I reached the last of the dozen hills there were more on the first hill, and I kept on until Mrs. Root called me to breakfast. Now, even though it was Sunday, I decided I could not have my squashes all ruined that way; and I spent quite a little time in getting some boxes to put around each hill. I did not have boxes enough, so there were several hills uncovered. My conscience troubled me a little, I admit, because of what looked so much like work on Sunday; but I thought the circumstances demanded it. Now for the outcome. The squashes I did not cover were not troubled worth mentioning, after which I concluded to mash the bugs and drop them around on the ground. In fact, these hills did rather better than the covered ones, because the box cut off the light. At the present writing, June 13, I have not been able to find a bug since that Sunday morning; and my impression is that the sight of their mashed and wounded companions scared them so that they all flew away to "healthier" hunting-grounds; and this only emphasizes the conclusion I have been coming to for some time; and it will apply to rats and mice, potato-bugs, squash-bugs, flies, mosquitoes, ants, etc. Get right after them; mash them right and left whenever an opportunity offers, and all these pests will sooner or later give your locality a wide berth.

I have not yet used any poison on my potato-bugs this year at all; but, of course, I have not a very large patch of potatoes. It is mostly the one row of Early Ohio I have mentioned. I go along this row every morning, noon, and night, and sometimes oftener, picking off every mature bug I can find, dropping them on the ground, and crushing them with a twisting motion of my foot. I think the smell of the crushed bugs has much to do with their keeping away new comers. You may recall that Terry thinks it is cheaper to hand-pick the first "mother" bugs that appear, before they have time to lay eggs, than to use poison. Of course, this applies only where the bugs are found in limited numbers.

Now, please remember this: Get right after whatever annoys you in the garden or in the poultry-house. Give them no quarter.

CHICKEN MITES—A CAUTION.

And this reminds me that I had a very nice coop made for a hen and chickens. It had wire-cloth doors so as to keep out rats and all other kinds of vermin. It had also a good roof and a door for the little chicks, a place where the hen can sit on the bare ground or on the bare floor, as she thinks best. I loaned this coop to a neighbor, as it was not in use. In fact, I *assured* him he could have it "just as well as not." When it came home last fall, it was put away safely in the back cellar. When I got it out for the hen and chickens a few days ago it was almost literally alive with mites so minute that one could hardly see them with the naked eye unless it was out in the full rays of the sun. I mixed up some kerosene and mothballs and soaked the whole structure—every crack and crevice—and I *think* they are all dead. Now, is it not a little strange that these mites lived for six months or even more in a cold dark cellar, without any "visible means of support"? My impression is that they ate into the wood where there was no paint, and found sufficient sustenance on the decaying wood to keep them alive for six months, and possibly the mites might have been in a dormant condition, or perhaps the eggs laid last fall just hatched out.

Let me say in closing that it is a commendable thing to be ready and willing to lend things to your neighbors—especially those things you are not using yourself; but if you should lend a chicken-coop, look out that it does not have something inside when it comes back that it did *not* have when it went away.

HEALTH NOTES

ROBBING SICK PEOPLE; QUACK DOCTORS, ETC.

One of the best boys I ever had in my employ began helping me in the garden when he was scarcely a dozen years old. In fact, I put him in as a boy foreman when we were growing plants for sale, and I gave you his picture years ago where he had about a dozen other youngsters in charge. Four or five years ago, from lifting or something of the sort, he had a pain in his side. He consulted several of our home physicians, but there seemed to be a disagreement in regard to where the trouble was. Different doctors from time to time were so sure they could cure him that it took about all he could earn for several years to pay his doctor bills. About a year ago I found he was paying a woman for chiropractic treatment, and had paid her quite a little money. I advised him to go to the city and have an operation. But he dreaded an operation, and kept putting it off. As several of our readers have asked me in reference to chiropractic, and as Mrs. Root had a stiff neck on account of catching cold, I went with her to the woman doctor for treatment. She said something was out of place in Mrs. Root's neck, and added that she could fix it all right. After she had manipulated for ten or fifteen minutes, and had received her dollar, Mrs. Root mentioned that she was going to the dentist's.

"Oh dear me!" said the women doctor, "the dentist will get your neck all out of place again, and after you have been there you will have to come back and have it done all over again." As that would cost another dollar, Mrs. Root and I thought we had invested enough in that line. It did not do Mrs. Root a particle of good; and when the woman mentioned that she had entirely cured an acquaintance of ours who had a "course of treatment," we took pains to inquired of said friend. She replied promptly that her son had paid the woman a lot of money for treatment, and it had done *no good* at all. Now for the moral of my little story.

Our friend Frank, whom I have told you about, was finally induced to go to Cleveland and have an "X-ray" examination. They said at once that one of his kidneys—the one on the side where he had been feeling pain for years, was decayed and practically gone. The kidney has just been removed by a surgical operation; but because the matter had been allowed to run so long the decaying kidney had affected the lungs, and the surgeon thinks his recovery doubtful, although he is going to do his best for him. Now, this woman doctor and other doctors (most of them strangers) by assuring him they could manage his troubles, induced him to put it off until now it may be too late. This matter is brought to mind by the following clipping:

> "Chiropractic," says *The Journal of the American Medical Association,* "is in no sense a profession. It is a scheme by which sharpers induce men, generally of little education and with a dwarfed sense of moral obligation, to learn the tricks of a disreputable trade—quackery."

From what experience I have had in the above, I should say the American Medical Association is exactly right about it.

TEMPERANCE

FRIEND DOOLITTLE TALKS TO US ABOUT THE SALOON BUSINESS.

Dear Brother Root:—Enclosed find something for your department in GLEANINGS. I hope you may see fit to have it appear before the many readers of GLEANINGS. I stand ready to back up every word of what I have written.

I am sorry about this Mexican-war scare coming up just at this time when the minds of the masses were turned as never before toward getting out from under the "yoke of Gambrinus." Now all eyes are turning away from the real issue in our country, by the great display of war headlines in our daily newspapers.

But we know this, that

When right is on the scaffold
And wrong upon the throne,
Behind the scene sits God himself,
Watching o'er his own.

And so we trust that out of all the wickedness of men, right will finally prevail.

Marietta, N. Y., June 6. G. M. DOOLITTLE.

Amen, Bro. D., for the verse you give us. There are many people, myself included, who need to keep calling to mind that "there is a God in Israel."

Below is the article referred to:

"UNCLE SAM" AT THE HEAD OF THE LIQUOR BUSINESS.

My dear Mr. Root:—In Our Homes, second paragraph, page 396, May 15, you say, "The liquor business has shown itself to be bigger than Uncle Sam." Does not this convey a wrong impression? The only logical conclusion the studious, earnest, careful thinker can come to in this liquor-business matter is, that the Government (Uncle Sam) *is* the liquor business, inasmuch as not a gallon of liquor can be legally sold in the United States only as Uncle Sam becomes the *first* party in the transaction. Only in the Government at Washington can be found the *headquarters* of this business. This seems plain to the one who has looked into the matter far enough to know the real facts, that every saloon under the jurisdiction of the United States is a *government* saloon. The proof of this assertion lies in the fact that *no person* can sell liquors in any of Uncle Sam's domains without a permit from the Government, only as he subjects himself to being arrested as a *criminal.* It is this *permit* that keeps the saloon and liquor business where it can ruin our boys and the homes of our fair land. All saloons are established by Uncle Sam, not by the men in the liquor business. And here has been the trouble with our temperance work in the past. The Government is the *head* of this matter, and the approximate 250,000 saloons are the *hairs* growing from the head. In the past, our work has been "moral suasion" and the plucking out of a hair here and there, while the head was left. Consequently, after we had pulled out a hair in the shape of a saloon or a town, and called our place *dry,* we soon found that the head could grow another hair in the place of the one we had worked so hard to pluck, and the first we knew we were *wet* again. Even whole States which went dry were turned back to the wet again under the fostering care of the head, that the revenue from the wet might build our battle-ships, dig the Panama Canal, etc., this revenue from liquor and tobacco amounting to about one-half of our Government expenses, as given by the *Free Press,* and quoted in the first paragraph on page 663 of GLEANINGS for September 15, 1913. And it is with shamefacedness that it must be acknowledged that you and I, friend Root, have *our* share in that revenue, whether we wish to or not. And, sharing in this revenue, we in the past have condemned the men who "stood behind the bar" while, through our ballots, we have sanctioned and sustained the *head* which could have received no revenue only as it came from these keepers of *our* Government saloons. Let's get things right, and place the responsibility where it belongs, when we shall know how to work more intelligently than we have been doing in the past.

Borodino, N. Y. G. M. DOOLITTLE.

THE LONDON TEMPERANCE HOSPITAL

We are glad to give place to the following:

Mr. A. I. Root:—In the temperance section of your issue for May 15 I notice an inquiry for the address of the London Temperance Hospital. It is located in Hampstead Road, in the northwest part of London. I well remember this famous institution, as I used to pass its doors every school day from the years 1879 to 1884, on my way to school. I was born about a mile from the hospital, and once had my young heart nearly burst at the sight of a little boy, who had been run over in the street, being driven in a carriage through the hospital gates. As the district is a poor one—that is, its inhabitants are not financially well fixed—this hospital must indeed prove an inestimable boon, for the services rendered there are, of course, quite free, as with the other London hospitals, and such like institutions scattered throughout my native land. Any correspondence addressed to the London Temperance Hospital, London, England, would assuredly reach that institution safely. ALBERT G. NICHOLSON.

Rustburg, Va., May 22.

Massachusetts
JUL 23 1914
Agricultural
College

Gleanings in Bee Culture

VOL. XLII. JULY 15, 1914, NO. 14.

High-grade Italian Bees

and Queens Cheap

Queens, Bees in 1-lb. Packages, Nuclei, and Full Colonies

With our nearly one thousand colonies of bees in and near Medina, and the failure of the honey crop locally, we are prepared to furnish bees in any form and in any quantity at low prices. This strain came from Apalachicola, Florida, and has been tested out for vigor and honey-producing qualities.

Low Prices on Application!

Remember, these are not cheap bees, but the best we have been able to produce in all our experience. The combs are newly drawn from frames of foundation in metal-spaced Hoffman frames. Bees have been carefully inspected, with a guarantee they are free from disease. See Special Notices elsewhere for particulars.

Queens by Return Mail

We shall be able to supply this year about 10,000 queens from our own queen-breeding yards. We shall have, as heretofore, our own Apalachicola and basswood strains of bees, and also our leather-colored Uhrichsville stock. Remember that these queens are reared with our own equipment, with our own bees, by our own men, from the best breeders that we have. The cells are built in two and three story colonies. When we have a surplus we will sell them at verv low prices in lots of 25. 50, and 100.

OUR GUARANTEE

We sold last year something like 15,000 queens. There is reason for this, because our customers have come to learn what the Root guarantee means.

The A. I. Root Company, Medina, Ohio

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio

H. H. Root, Assistant Editor E. R. Root, Editor A. L. Boyden, Advertising Manager
A. I. Root, Editor Home Department J. T. Calvert, Business Manager
Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLII. JULY 15, 1914 NO. 14

EDITORIALS

There has been more or less controversy as to whether any strain of honey-bees can gather nectar from red clover. We have carefully studied the conditions under which red clover will furnish nectar to *Apis mellifica;* and we believe the facts we have presented in our footnote to Mr. Fox's remarks on page 559 will explain satisfactorily the conflict of opinion and testimony.

Our Cover Picture

The view on the cover for this issue shows our nucleus yard at Fort Gadsden, Florida, a few miles up the river from Randlett's Landing, as mentioned on page 413, June 1. These nuclei, as fast as they were formed, were moved up to this place, for it was the nearest piece of high ground available along the river. In all, we brought back nearly 500 nuclei.

Those Two Field-days at Medina

The field-day meet under the auspices of the Ohio State Beekeepers' Association was pronounced by every one to be an unqualified success. While the attendance was not as large as expected, owing to the poor season, it was considerably more than local. There were not only prominent beekeepers from all over the State, but some from other States. Visitors began coming in on Wednesday night, Thursday, and Friday. On the evening of the 9th a general program of beekeepers' songs and addresses was given in the big warehouse, with about 600 present, including employees and some citizens of Medina. There were addresses from Mr. Fred Leininger, Mr. E. R. King, State Inspector, and shorter speeches from President W. A. Matheny, of the State University, Athens, Ohio. A. I. Root gave a talk of nearly two hours. So much was said about it that he was induced to continue his unfinished story on the afternoon of the 10th at the basswood apiary.

Representatives of the press were present, including Mr. J. H. Donahey, the celebrated cartoonist of the Cleveland *Plain Dealer*—an artist whose work is clean and first-class in every respect. With him were W. C. Howells, one of the city editors, and other members of the staff of the *Plain Dealer.*

A. I. Root's speech was taken down in shorthand, and we hope to reproduce it in the columns of Gleanings. It was the story of A. I. Root's ups and downs in bee culture, with some wholesome advice to beekeepers and others on how to meet obstacles in life and overcome them.

On the first and second days beekeepers from out of town were taken in automobiles to three of our outyards. There were eleven in all. Various stunts in queen-rearing, putting up bees by the pound and nucleus, extracting with power machinery and hand machines were pulled off on both days. Many beekeepers came to us voluntarily and expressed the feeling that these two days will long be remembered among the big events of their lives; and they sincerely hoped that some association or that the A. I. Root Co. would arrange for another field day in which beekeepers from all over the United States would be invited.

Another Field-day at Medina, of the Wm. Edwards Co.'s Traveling Salesmen

Immediately after the two field days, July 9 and 10, under the auspices of the Ohio State Beekeepers' Association, another field day, July 11, immediately following, was planned by The A. I. Root Co., to take care of 65 traveling salesmen of the Wm. Edwards Co., wholesale grocers, of Cleveland. These people, among other grocers' products, sell honey; and in order that they might be better able to sell it, arrangements were made to give their salesmen demonstrations in our beeyard, including general extracting. They came to Medina, 32 miles, in automobiles, 65 strong. Demonstrations were pulled off according to schedule, and photographed by a moving-picture man who arrived just a little too late for the demonstrations of the day before. After the field work, these 65 salesmen were given a "honey-spred" consisting of hot biscuits, honey, and milk. After a hot dusty ride this menu seemed to go to the right spot—at least so declared the men. With many thanks for the courtesies extended them, they left here a little after 5 o'clock in their machines, better equipped than ever for selling honey.

POPULARIZING HONEY.

Incidentally it might be mentioned here that The A. I. Root Co. is seeking to popularize honey through the daily press, monthly magazines, the moving-picture theaters, and through personal demonstrations to the crowds that are coming here almost every day of the working season, and we believe that our efforts are producing results; for never in all the history of bee culture was honey consumed so largely on the table as it is to-day. Such concerns as the Wm. Edwards Co., wholesale grocers, with their little army of salesmen, will spread the gospel of honey as a food far and wide.

* * *

Honey-crop Conditions at the Present Time; a Short Crop of Clover

It is evident now that the clover crop will be short this season. While the yield has been good in some favored localities, has been from fair to good in northern Michigan, Wisconsin, and Minnesota, the *aggregate* yield will be very much below that of last year. When there is a shortage in clover it always means a stiffening of the market.

When the prospects were so promising a month ago, the general honey market was in a state of decline. What few offerings were made were on a very conservative basis. In fact, Florida beekeepers wrote us, asking what was the matter of the market that they could not sell their crops. Buyers, expecting an enormous yield of clover again, either would make no offers for honey or at figures so low that the producers did not care to sell. But from now on, there should be a stiffening of prices, notwithstanding there is a prospect of a good yield of alfalfa in the West, both comb and extracted, and from a light to fair yield from mountain sage in California.

Those who have secured a crop of clover comb honey should not make the mistake of holding the price too high. In fact, their figures should be but little higher than those of last year. Buyers will not pay very high prices for clover comb honey if there is a good supply of alfalfa comb honey at lower prices. So western alfalfa will probably prevent a very sharp advance on Eastern clover. The facts are, consumers are being educated to alfalfa. The day has gone by when white clover can command a price exclusively its own.

There has been a comparatively large yield so far from basswood—in fact, it is a basswood year. At the present time we are having a splendid flow from our basswood apiary. If every yard in Ohio were getting as good a yield, Eastern prices, so far as Ohio is concerned, would tumble without doubt. We are getting as fine a lot of pure basswood as we ever had. We have had yields other years from this source that were larger, but they were clover and basswood mixed. Reports from other sections of the country show that, where there is any basswood left, the yield will be good; but the areas where it grows are so limited that it does not greatly if at all affect the general clover market.

Much of the clover extracted this year will contain a large proportion of basswood, but not enough to mar it for clover, because it will have a flavor that many prize. A. I. Root is very fond of the basswood flavor, especially when a little of it is intermingled with clover, and A. I. Root is no exception among connoisseurs of honey in the clover belt.

Buckwheat may be a little light this year, owing to the general drouth conditions that prevail at the present time. If it is broken by rains, there may yet be a fair yield from buckwheat in New York.

We have received no late advice from Canada respecting the sections north of the lakes; but the Canadians will probably receive more clover honey than their neighbors on this side of the lakes, for the Northern sections seem to have more clover. From present indications the honey market, however, in Canada should be firm.

* * *

Another Indiana Bulletin on Bees Free for the Asking

There has been issued from the office of the State Entomologist, C. H. Baldwin, Indianapolis, Ind., another bulletin entitled "Circular of Information for Beekeepers, No. 2," by B. F. Kindig, one of the assistant State inspectors. This is one of the very best bulletins ever put out by any State or by any writer. It contains 60 pages of good sound orthodox teaching on bees. Mr. Kindig is a practical beekeeper himself, and he knows how to tell his story in such a way that the reader can easily follow. It is well illustrated, many of the illustrations being original.

It is stated that this bulletin is free for the asking. Certainly every Indiana beekeeper should obtain a copy before the edition has been exhausted.

To give the reader an idea of some of the good things that are in this bulletin, we copy from page 32 some short pungent paragraphs under the head of "Miscellaneous Statements" that can be read with profit, and here they are:

SOME MISCELLANEOUS STATEMENTS REGARDING BEES AND BEEKEEPING.

Pure honey does granulate.

Honey-combs are not manufactured.

"Any old thing" does not make a suitable hive in which to keep bees.

Queens are mated but once in their lives, and then out in the open air.

Bees do not bite holes in ripe fruit, but they do suck the juices after the openings have been made.

Bees may have some wisdom, but ignorant people give them credit for more knowledge than they possess.

It does not pay to "jump head over heels" into the bee business unless there is plenty of experience to back it up.

It is not just a proposition of putting on some supers in the spring and taking off a crop of honey in the fall.

Beating the dishpan or ringing the dinner-bell never settled a swarm—they just naturally cluster after leaving the hive.

Bees have no more to do with the scattering of fruit diseases than do the other hundred of insects that visit the flowers.

It is not a sign of ability to make a practice of trying to handle bees without smoker or veil—it's just foolhardiness.

Bees do not know their owner. They are wild animals, in no sense domesticated, even though they do not always resent the intrusion of man.

A small person who "uses his head" is worth more than a ton of "beef" in the beeyard; but a liberal supply of both brain and muscle is the ideal combination.

There is not a king or queen in the hive in the literal sense of the words. There is no individual bee that rules the colony. They seem to work toward the end that the greatest good for all may be accomplished.

Sometimes even bees do not seem to have any common sense.

And, again, on page 34 are some more paragraphs worth reading:

INFLUENCES CONTRIBUTING TO PROFIT AND LOSS IN THE APIARY.

Two factors, carefulness and carelessness, make up the greater part of the profit or loss in beekeeping. In many of the suggestions which follow, one or the other of these factors will be apparent.

Study your business and the demands of your locality.

Success in beekeeping, as in any other business, demands that much attention be given to details.

Equalizing brood or stores in foul-brood localities invites the spread of disease.

Use movable frames, and see that they are movable and not cross-combed.

It pays to know the conditions existing in the colonies from week to week

Bait combs get the bees started early in the sections, and so they store more honey.

Fads last only a short time. It isn't worth while to bother with them. Real merit counts in the long run.

Try to have hives and equipment conform to the standard in size. Their market value is much higher.

An attractive package adds much to the market value of a product.

A reputation for selling only good goods is one of the best assets of a beekeeper.

It does not pay to work for wax production. It requires too much of the time and energy of the bees in producing it.

Contract the entrances to weak colonies. It may save them from extermination by the robbers.

Beekeepers' meetings are sources of much good. Try one and see for yourself.

Home-made equipment in general either costs more or is worth less than factory-made supplies.

Box hives and cross-combed frame hives are not only a nuisance, but do not give satisfactory financial returns.

It pays to go through the colonies carefully, early in the spring. Some may be queenless, others weak or in need of food.

It does not pay to keep more colonies than can be properly cared for. Better sell off some than buy more and not care for them.

Feeding sugar syrup in the fall may mean satisfactory wintering, and a strong colony ready for the honey-flow the next season.

Italian bees have been proved to be the most profitable in a large number of widely scattered localities.

Keep in touch with the bee journals, publications of the Department of Agriculture, and the State Entomologist's office. They are all working tor the betterment of beekeepers.

The practice of selling prime swarms is more profitable to the purchaser than to the seller.

Scraps of wax gathered here and there increase the returns in dollars, and may prevent the spread of foul brood.

When shipping to a commission man it may save much worry and some money to find out first whether he is responsible or not.

When buying bees, buy them guaranteed to be free from disease, and see that they are so before removing them from the premises.

It pays to use full sheets of foundation, both in brood and extracting frames and in the sections.

Two or three weak colonies may manage to live; but if they were united to form one strong colony they would usually store a surplus of honey.

Wholesaling of honey is the easy way, but the building-up of a retail home market is the more profitable way.

Even though extracted honey may not appeal to one's esthetic nature, yet the locality may require extracted-honey production in order to get a marketable product.

The man who asks a good price for first-class honey not only sells it but wins the respect of his customers. The man who sells below the market is laughed at after he is gone.

The possession of a good smoker and veil pays high dividends in the reduction of the number of stings and the resulting ease and rapidity with which the bees can be handled.

It's a beekeeper's business to know whether his neighbor's bees have disease or not. If there are any suspicious cases or information is desired, notify the State Inspector of Apiaries, Room 130, State House, Indianapolis.

Foul brood causes more loss than any other enemy of bees. The disease is spread through the honey; and any way that allows the bees of one colony to get the honey of another is favorable for the spread of the disease.

After a beekeeper has reached the greatest number of colonies that he can care for without interfering with other duties, then the law of diminishing returns applies; and if the number of colonies be increased further, the profit per colony will be reduced.

The number of colonies in one location should be determined by the abundance of honey-producing plants. In some locations several hundred colonies might be kept profitably, while in other localities twenty-five colonies are too many. In some locations one hundred colonies may make a living and very little besides, while if the number were reduced to fifty a profitable surplus might be secured.

As Mr. Kindig is an experienced foul-brood inspector, and as such has traveled extensively over his State inspecting hives, judging by what he has seen, he is in position to know whether it pays one to make his own hives. At all events, this is what he has to say:

Speaking broadly in reference to conditions that are met with throughout the State, the home-made hives are usually a nuisance in some respect, and almost always defeat one of the many objects desired in the use of modern hives. They are rarely accurately made. This results in the various parts not being interchangeable, and so frequently prohibits desirable manipulations in the beeyard. Many men try to have a patent(?) hive of their own invention, and it has not yet been the writer's pleasure to find many that were worth as much as a two-dollar factory-made hive, although many of them with all of their fixings cost as much as six or eight dollars. While it is probable that many improvements will be made in hive construction, and it is not the intention to try to discourage any one with inventive genius, yet before indulging in the luxury of building "a new patent hive" one should conscientiously study the construction of the various factory-made hives now on the market, and consult beekeepers of wide experience concerning the project.

Hives of equal quality cannot be made as cheaply at home, if labor is counted, as they can be purchased.

Home-made hives are usually of poorer quality of material, and are inaccurate in measurements.

Unless made to fit Hoffman frames they are of practically no value on the market. They frequently have some features of their construction which require more labor in manipulation.

Of course Mr. Kindig is authority on the treatment of bee diseases. He covers the subject well.

The bulletin closes with a copy of the horticultural bee-inspection laws of Indiana.

The National Net-weight Law Again as it Affects Comb and Extracted Honey

In our last issue, page 487, we went on to state that the national net-weight law, so far as it relates to comb honey, had been construed to mean by the committee at Washington the weight of the comb honey itself, exclusive of the section or frame surrounding it. We expressed the hope at the time that the effective date for this ruling to take place might be postponed one year hence. We were laboring under the impression that any comb honey on the market, not properly marked, after Sept. 3, 1914, even if packed prior to that date, would be misbranded, and therefore subject to the fines and penalties for violation of the pure-food act. We accordingly asked our Mr. Selser, of Philadelphia, to see Dr. E. F. Phillips, in Charge of Apiculture, Bureau of Chemistry, and arrange for an interview with the committee to see if we could not get an extension of the time. While they failed in this, they obtained an opinion from Solicitor Francis G. Caffey to the effect that a package of food is not misbranded when properly labeled as to weight, if it was put up or prepared *prior* to Sept. 3 of this year, but that the burden of proof rests on the packer to show such prior packing. It appears that, while the law went into effect March 3, 1913, no penalty attaches until 18 months after that—Sept. 3, 1914. Here is a copy of the Solicitor's opinion·

Receipt, by reference, is acknowledged of your letter of April 14, in which you inquire as to how much time will be allowed beyond September 1, 1914, for the disposal of goods packed under labels not showing net weights.

Ever since the passage on March 3, 1913, of the net-weight amendment to the Food and Drugs Act, it has been a violation of law for packages of food products shipped in interstate or foreign commerce not to be marked in compliance with the amendment. Section 2 of the amendment provided, however, that no penalty shall be enforced for any such violation "as to domestic products prepared or foreign products imported prior to eighteen months after its passage." The eighteen months' period will expire on September 3, 1914.

While the question raised in your letter, being purely legal, can not be authoritatively determined by this Department, and must be eventually settled by the courts, the views of the Department are:

First. That the penalties of the Act of fine, imprisonment, or confiscation cannot be enforced for violation of the net-weight amendment in respect to domestic food products prepared or foreign food products imported prior to September 3, 1914.

Second. That if, after September 3, 1914, packages of food products, not marked as required by this amendment, be shipped in interstate or foreign commerce, or otherwise brought within the jurisdiction of the Food and Drugs Act, the burden will be upon the person guilty of the violation to show that the article, if domestic, was prepared, or, if foreign, was imported, prior to September 3, 1914.

Third. Persons guilty of violations who cannot make proof that preparation in the case of domestic, or importation in the case of foreign, food products was prior to September 3, 1914, will be subject to the penalties of the Food and Drugs Act.

FRANCIS G. CAFFEY, Solicitor.

April 29, 1914.

From the last two paragraphs as given above, it will be apparent (and we reiterate here for emphasis) that *the burden of proof will rest on the packer to show that the article of food that appears to be misbranded under the net-weight amendment was prepared before Sept. 3 of this year.* Don't forget this. As it might be difficult to prove that fact, and in any event entail considerable expense, it would be far better for the packers of all food products, including comb honey, to see to it that none of the goods, after Sept. 3, 1914, are left on the market in any State other than the one in which the goods were prepared or packed. It, therefore, behooves every producer of comb honey, dealer, commission merchant, or an association of beekeepers, to relabel or restamp all the comb honey (that is now in their possession, and in the hands of their dealers), showing the net weight of the comb honey itself, exclusive of the frame or section, the carton, or glass, if it is a glassed product.

When one's honey has already been put up and packed in cartons, we presume it would be permissible to mark out the combined net weight of the section and the comb honey in plain figures in ink, and put in its place the net weight of the comb honey less the weight of the section. Such erasure and remarking rather implies an admission that Uncle Sam now compels an honest weight that was not honest before. But any such corrections will not be necessary if the honey in question is sold in the State in which it is produced or packed; but as no one knows *where* his honey will go, he will do well to err on the safe side, especially if there is a State law covering net weights.

The average section of honey, 1⅞ x 4¼, will run from 13½ to 14 ounces, including the wood, and as the section itself weighs very nearly one ounce it will be necessary to deduct that much, making the net weight show 12½ or 13 ounces. A 4 x 5 section will run the same weight, and so the same deduction will have to be made. The wood of 4¼ plain section will not weigh quite as much as a beeway section of the same size; but it will be necessary to subtract one ounce just the same. In doing this, a plain section 4¼ square will weigh heavier than a 4¼ beeway section.

But many beekeepers have been selling their comb honey by the case or by the count; and it would look as if the net-weight law would put a stop to this; but the selling by count is permissible as we understand it, providing that every unit in the case—that is, every section—is marked not less than so many ounces. Let us take a concrete example:

A No. 1 1⅞ beeway section of honey, 4¼ square, will run from 13½ to 14 ounces, including the wood. If such section is marked not less than 12½ ounces, net weight, it may be sold by numerical count; but care should be taken that no section in the case weigh less than the minimum specified on it. It would then be permissible, as we understand the ruling, to sell a 24-lb. case or a 12-lb. case by numerical count, or so much a section. The net-weight law does not require that a section shall not weigh *more* than a specified amount; but it does stipulate that it shall not weigh *less.*

As soon as beekeepers and dealers become accustomed to the operation of the new law, the intent of which we believe to be eminently fair, there will be no inconvenience nor hardship. We had hoped that the effective date when penalities would be applied might be set a little further along; but as the Bureau of Chemistry has no power to make this change we must, of course, make the best of it. If there is any comb honey that any of us have sold bearing the weight of the section and the comb honey, and which is now out of our possession, it will be up to us to prove that such sections were prepared or packed prior to Sept. 3, 1914, after which the penalties for misbranding can be applied.

Those who sell their honey in cartons can very easily mark the net weight of the honey put in cartons; for it is permissible to put the net weight on the outside of the carton, said net weight being the comb honey itself exclusive of the section, carton, and wrapper; but as it will be impracticable to mark on every carton the exact net weight of each individual section, all the comb honey should be very carefully graded, and the cartons marked not less than so many ounces of comb honey. The No. 2 or underweight sections will have to be put up in cartons with a correspondingly lower net weight. That will mean that there will probably have to be two or three different grades of weights of honey.

Where one does not sell any honey in cartons he will have to use rubber stamps to mark each section, using an indelible, non-fading, non-blurring ink; that is to say, an ink not affected by the weather nor by dampness. The rubber stamp should indicate the weight in plain letters and figures. In the case of cartons there will probably have to be three different wrappers to take care of all the three weights of comb honey.

The Colorado Honey-producers' Association, under the direction of Mr. Frank Rauchfuss as manager, has worked this matter out very nicely, and we copy herewith a circular which they are sending out to their members. Other beekeepers who produce honey in the same class of sections, 1⅞ beeway by 4¼, will do well to follow these specific instructions.

THE FEDERAL NET-WEIGHT LAW.

To the Members of the Colorado Honey Producers' Association

You are hereby informed that the Federal Net-weight Law passed by Congress March 3, 1913, is now enforced, and that the regulations published by the Net-weight Law Committee May 11, 1914, must be observed in the packing of articles of food intended for interstate commerce.

(Copied from food inspection decision No. 154.)

REGULATIONS AS APPLYING TO HONEY.

A. The quantity of the contents in all cases of food, if in package form, must be plainly and conspicuously marked on the outside of the covering or container usually delivered to consumers.

B. The quantity of the contents so marked shall be *the amount of food in the package.*

C. The statement of the quantity of the contents shall be plain and conspicuous, and shall be so placed in such characters as to be readily seen and clearly legible, when the size of the package and the circumstances under which it is ordinarily examined by purchasers or consumers are taken into consideration.

D. If the quantity of the contents be stated by weight or measure, it shall be marked in the terms of the largest unit contained in the package. For example: If the package contains a pound or pounds and a fraction of a pound, the contents shall be expressed in terms of pounds and fraction thereof; or of pounds and ounces, and not merely in ounces.

H. The quantity of the contents may be stated in terms of minimum weight, minimum measure, or minimum count. For example: "Minimum Weight, 16 oz." Minimum Volume, 1 gallon," or "Not less than 4 oz.;" but in such case the statement must approximate the actual quantity and *there shall be no tolerance below the stated minimum.*

Attention is also called to the enclosed copy of a telegram by Dr. C. L. Alsberg, Chief of the Bureau of Chemistry, where it is plainly stated that *weight of actual contents* shall be marked upon sections, or when honey is packed in cartons, then upon the cartons containing the sections.

As it will not be practicable to mark the *actual net weight* on each section of honey, the Board of Directors of The Colorado Honey-producers' Association has adopted the plan suggested in paragraph *H*, of marking the *minimum net weight* on each section or carton, as per following resolution which was unanimously adopted:

Resolved, In order to comply with the Federal Net-weight law, and to identify each member's honey, each section of comb honey sold by the members through The Colorado Honey-producers' Association, on and after July 1st, 1914, must be stamped on top of each section of honey: first, with the initials of the Association; second, with the member's consignment number, prefixed by the word "Apiary," and, third, with the minimum net weight adopted by the Board of Directors for said grade of honey.

For example: If a member having consignment number 14 wishes to mark either a fancy white or a No. 1 section of honey, he will use a stamp like this:

"C. H. P. A., Apiary No. 14.
Net Weight Not Less Than 12½ Oz."

If a choice-grade section is to be marked, he will use the following stamp:

"C. H. P. A., Apiary No. 14.
Net Weight Not Less Than 11 Oz."

If a number-two grade section is to be marked, the following stamp will be used:

"C. H. P. A., Apiary No. 14.
Net Weight Not Less Than 10 Oz."

As the weight of the section itself is one ounce, *the gross weight of a number-one section of honey must under no circumstances be less than 13½ ounces.*

The gross weight of a choice-grade section of honey must not be less than 12 ounces.

The gross weight of a number-two section of honey must not be less than 11 ounces.

(Attention is called to the fact that the *Board of Directors has changed the minimum gross weight of the number-two grade from ten ounces to eleven ounces.*)

MARKING OF SHIPPING CASES.

Both ends of each shipping case shall also be stamped by the producer with the same mark that is stamped on each section contained in the case. This stamp shall be placed immediately above each hand-hole of the case.

EXTRACTED HONEY AND STRAINED HONEY.

If in five-gallon square cans. shall be uniformly packed, so as to contain 60 lbs. net weight of honey, and shall be marked in like manner on top of each can as prescribed for *comb honey*. The cases containing cans of extracted honey must be marked so as to show the number of cans in case and net weight of each can.

As a plain and conspicuous marking of the net weight is required on each section of honey, and as, owing to the nature of the contents, it would not do to exert much pressure in stamping them, the Board of Directors recommends the use of cushion rubber stamps, and the use of non-fading ink pads.

THE COLORADO HONEY-PRODUCERS' ASSOCIATION.

Before we pass from a consideration of the net-weight law as applied to comb honey, there is one important point to be considered, namely: That prices may have to be readjusted. If, under the old scheme of marking, a case of 24 sections brought $3.00 wholesale, and if it still brings $3.00 under the new scheme, the producer will lose the difference between the minimum weight marked on the section and the actual weight. Let us suppose a case:

Here is a case of sections that has sold at $3.00 per case of 24 sections. Before the net-weight law went into effect, the sections, fat and lean, would *average* up so as to make a case or several cases all of a uniform weight. Under the new net-weight law, if sections are sold by numerical count, then the producer must have every section so it will not weigh less than a certain minimum. But it is apparent that whatever there is above the minimum, the producer or dealer is actually giving to his customers. To take care of this loss he can mark the actual net weight on every section, and then sell to his customers by weight, the sum of all the weights of the individual sections. But most producers and associations, so far as we have heard from them, prefer to mark the minimum weight on each section, less one ounce for each section, rather than go to the trouble of weighing each section individually. If we take either horn of the dilemma it will mean that the producer, if he sells at the old price, will receive less than he did before. In the one case he is giving more for the same money, and in the other case he receives pay for the actual weight; but as the net cost of production is increased by the labor of weighing and marking each section he actually receives less.

As the price of comb honey, as we have before said, is regulated by the law of supply and demand, the producer, in order to make as much as he did before, should either charge more per case on the minimum-weight basis per section, or charge more per pound if he sells a case by weight. The next question is, "Can he get more per pound?"

In regard to marking sections with rubber stamps, the committee favors labels rather than stamps; but it is practically impossible to label every individual section, or, rather, it is more accurate to say it would be much more practicable to use an indelible non-fading ink with a rubber stamp. The latter can be used far more rapidly than one could use labels and paste. If one uses gummed labels he will find such labels will come off.

NET WEIGHTS AS APPLYING TO EXTRACTED HONEY.

The secretary of the committee has decided, in the case of extracted honey in tin cans, that it is permissible to mark those cans by volumetric weight, as gallon, half-gallon, quarts, and pints, or mark the actual net weight of the contents. The average buyer would prefer to buy it by weight, for the simple reason that a gallon or five gallons of thin unripened honey may spoil on his hands; and in any case is not as valuable as the same number of gallons of thick well-ripened honey. Dealers and producers alike will probably sell by actual net weight of honey in the can. In the South, honey is sold by the gallon; but in the North it is sold almost entirely by weight.

In the case of bottled honey all bottles should show the actual net weight of honey on the labels exclusive of the weight of the glass. Heretofore it was not necessary to show the weight of contents on the label.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

A. I. ROOT, instead of using saw or pruning shears to cut off the spur of a fowl, p. 442, why not use the sharp cutting pincers a blacksmith uses to cut off the edge of a horse's hoof?

H. CAMPBELL sprinkles a little fine sand on the second coat of paint on the entrance of hives, while the paint is still wet, and dusts off loose grains before applying the last coat. In a blustering wind, hives so treated lost scarcely a bee, while chilled bees with their loads of pollen lay thick about untreated hives. The sand allows the bees to hold their own against the wind.—*British Bee Journal*, p. 156.

L. W. CROVATT, p. 464, no doubt you have it right, that "locality" makes a difference as to painting hives as well as to other things. If my hives should go as bad as you paint it in a single season, I'd paint. Since they are in fair condition after 25 unpainted years, do you think you ought to insist on my painting, provided I agree to paint after I move to Georgia? [We hesitate about butting into this controversy; but we beg to suggest that Dr. Miller's unpainted hives, if exposed to the hot sun in hot weather, might have a tendency to melt down the combs; but he uses a two-inch-deep entrance the full width of the hive. Well, we see no alternative but to let our old friend have his hives unpainted.—ED.]

ARTHUR C. MILLER has gotten up a hive-tool that I've been using for some time. It has a chisel at one end, like the Root tool, but the other end is entirely different. At 5½ inches from the chisel end it is 1 inch wide, and then tapers down quite suddenly to ⅜ inch in width, being 5-16 at the end, the total length being 8 inches. At 1½ inches from this small end it is bent back a little more than to make a right angle. When thus bent the finished tool is 6½ inches long. The hook thus made keeps it from sinking down when put in the hip pocket; but I find it rather in the way there, and if you're not careful it hurts your hand. Miss Wilson doesn't like it so well as Dr. Cheney's modification of the Root tool, but I have a growing liking for Arthur C.'s tool. That hook is very handy to pry frames toward one without having to reach so far; it is fine to lift out dummy or first frames and is the finest thing I ever tried for cleaning out tin rabbets. I should want to have one if only to use for that one purpose alone.

G. M. DOOLITTLE says, p. 368, "I have never had any success in stopping swarming through the cutting of queen-cells after the queen had laid in them and the 'broody' fever had taken possession of the colony." At one time I was inclined to believe killing cells didn't pay, but I changed my mind after further experience, and perhaps after having bred out some of the swarming disposition; for I think there are bees so much given to swarming that they pay no attention to the killing of cells, and others so little given to swarming that they are easily discouraged from it. At present I believe that killing cells makes a big difference in the amount of honey I obtain. True, it fully prevents swarming in only a minority of cases, but the bigger harvest from that minority pays well for the work of all. Generally, after I've killed cells the first time I find within ten days grubs well advanced again. In that case I know killing cells will no do good, and other measures must be taken. But so long as I find nothing more than eggs or very small grubs, I keep on killing, and thus keep the swarm-demon at bay. Yes, indeed, killing cells is a fine thing here.

R. F. HOLTERMANN, I'd like to hold a convention with you and Byer to discuss those things on page 467. I'm puzzled to know just what you mean when saying the eight-frame hive "has to become a divisible-brood-chamber hive . . . looking up the queen-cells in the upper story." In this locality there is no looking for cells till supers are given, at which time all are reduced to one story. You have an entrance 1⅛ deep, and I suppose the same space under bottom-bars. I'm anxious to know whether bees never build down in that space. I have a 2-inch space with bottom-rack; and if 1⅛ space is left above or below the rack there's building. But the cases may be different. You're so ignorant you can't tell what's inside by the outside. So am I—can't tell a thing from the outside whether a colony will swarm next day or next year. But then with big ventilation there's little hanging out anyhow. But I think I'm just a little smarter than you in one thing; you look through your hives once a week. I get along pretty well with once in ten days. [The eight-frame hive is really a small hive in this day and age; and a small hive must be worked in sections on the divisible-brood-chamber plan. In our locality, forcing a powerful colony into the lower story, and into a super or two with empty supers of foundation, would force swarming a great many times.—ED.]

J. E. Crane

SIFTINGS

Middlebury, Vt.

We are glad of the introduction we are given in the May 1st issue to Charley Repp. I like to see a man with a backbone strong enough to defy the liquor interests of the country. Three cheers for Charley Repp!

* * * *

We were blest with a wonderful yield of dandelion honey during May. Strong colonies filled their hives, and many crowded the queens. This is something I have known but once before in fifty years. As a result, bees have built up very strong, and the outlook is good.

* * * *

I ran across an enthusiastic young beekeeper last week. He started in some two or three years ago, and foul brood cleaned him out, I believe, twice, without giving him a cent of profit; but last year he started anew, buying seven new colonies free from disease, and increased them to 21, and secured 500 lbs. of surplus honey. He has wintered every colony, and I have not seen a healthier or thriftier lot of bees this spring.

* * * *

An interesting page is 329, May 1, by Doolittle, on the prevention of swarming by removing brood. It has seemed to me that those who have recommended this method have rather overdone the matter. In my own experience I have had but poor success in securing combs filled with brood when placed in the center of a hive after the season of swarming arrived. Before this time there is something gained with prolific queens and a strong colony in an eight-frame hive.

* * * *

GOOD AND BAD COMBS.

The question of good combs is not the only spoke in the wheel of successful beekeeping, but it is an important one, and Arthur C. Miller has done well to call our attention anew to this important subject. A bee inspector meets with constant surprises. One of the things that constantly surprise me is that any one should pay out his hard-earned money for a movable-comb frame hive and then allow the bees to build such crooked combs that they become immovable. Or why do they buy and put bees into movable-frame hives and then never try to move or handle such frames? Or, again, as Mr. Miller says, why use combs with such quantities of drone-cells as we often find? Only last week I opened a hive and found two frames of drone brood, most of it with sealed brood, besides more or less in other places in the hive. I estimated there were at least 6000 cells of drone brood, to say nothing of a great horde of drones already hatched. I often find such combs near the center of the brood-nest, so the colony can begin rearing drones very early in the season. Mr. Miller says he keeps his drone combs as far from the brood-nest as he can, so the bees will not use it until late in the season. The same amount of labor and food would, in the hive I have mentioned, have produced 9000 workers; and the difference between 9000 producers and 6000 consumers would amount to considerable. What would we think of a dairyman who could keep a herd of twenty should he keep fifteen cows and five steers? or the poultryman who should allow a large per cent of his flock to be roosters?

* * * *

PROBLEMS IN FOUL-BROOD INSPECTION.

Mr. W. N. Randolph, page 333, May 1, lays down some vigorous rules for cleaning up foul brood. I cannot help wondering if he has had any experience with it. One beekeeper whom I visit had one colony diseased last spring. He burned combs, hives, and all, and then buried the ashes, but I find it again in his yard this year. In one district last year I destroyed every colony I found diseased; but I have found just as much this year. Sometimes we find almost every colony in a township diseased. Shall we destroy all?

An inspector is often up against some knotty problems. The scorching of the inside of a hive with a torch is all right, and I presume the painting would answer; but how about the thousands of bees from a diseased colony? These bees have been walking over diseased combs, drawing out the dead larvæ, tearing open cells containing dead and putrid larvæ—in fact, getting in as close touch with the disease as it is possible for them to, their bodies covered with hairs just right for carrying bacteria, and yet we never think of scorching their bodies or painting them; but if they consume all the honey they carry with them, there is little danger of their taking disease to a new hive, we are told.

How about the colonies in trees, church steeples, or cornices of houses, as I was shown the other day? I believe as the editor says on the same page, in a footnote to Mr. Hershiser's article, "Education along apicultural lines will do more good to eliminate foul brood than anything else."

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

Do not extract too close. Remember next year may be a bad one, and much honey may be required to tide them over. Leave a full super. It pays in the long run.

* * * *

Mr. B. G. Burdick, ex-president of the State Association, in partnership with Mr. M. J. Meeker, is embarking in the queen business. The new firm will be known as Burdick & Meeker.

* * * *

I tried a source of power for an extractor on the 13th of June, not the gasoline-engine kind, but the kind that wears small trousers and eats three meals a day. It worked finely, and not only kept the extractor going but removed the combs after the honey was out. Mr. Crawford, my helper, my eleven-year-old son Ralph, and I took off and extracted over a ton of honey in seven hours, a large part of which was sealed solid.

* * * *

J. E. Crane quotes Wesley Foster, page 448, saying, "Bees that cluster outside of the hive are wasting time." He says he does not feel sure about that. I believe Mr. Foster is entirely right, and would suggest to Bro. Crane that the bees clustered on the outside of the hive are not evaporating nectar but simply idling their time away, if my idea is correct that all evaporation takes place on the inside of the hive.

* * * *

The later in the season queens are introduced, the better they will be for the following season. This is especially true where the queens come through the mails. If raised and mated in the hives, the difference is not so great. Out of fifty introduced in April and May, 1913, a large per cent were superseded before the same months this year, or died and left the colony with no hopes of requeening, due to the lack of drones.

* * * *

The 1st of July of the present year I begin my record system with hives all freshly numbered. About this time the requeening of my yard will begin, and hereafter a close record of each colony will be kept—a kind of pedigree, if you please, noting conditions from time to time, the amount of honey stored from a certain strain, etc. In this way I hope to increase the standard of my bees as well as the output of honey. One of my objects is to see that no queen enters the third season at the head of a colony, and only a few choice breeders will be kept over under any circumstances. Too little attention is paid to requeening.

* * * *

Speaking of pollen as a stimulant to breeding, Mr. R. E. Fairchilds, of this city, recently told me of a time last summer when his bees were gathering quantities of pollen and a little nectar from the sunflowers, and were breeding rapidly. When the bluecurl came in bloom the bees went to it for honey which it was giving freely, but no pollen. The results, according to Mr. Fairchilds, were that breeding almost ceased when the pollen supply was checked for the honey-flow.

* * * *

I have just finished painting my entire apiary. It has taken 13 gallons of paint, besides considerable time to apply it. The entire cost, including the painter's time, will be about $50. It is a great satisfaction to me to sit up on the hill and look down the rows of snow-white hives, and perhaps more satisfaction to know that my hives will not suffer from the effects of weather for a couple of years. An occasional good coat of paint will keep them in good condition for years to come, and save additional expense, in that they will not have to be replaced. Another satisfaction to me is to know that my bees are all going in and out the entrance of the hive, and not here and there through corners and cracks of a lot of weather-beaten, warped, and twisted boards.

* * * *

Intensive or extensive beekeeping, which is better? Extensive is not as profitable in proportion as intensive. This year I have given intensive a thorough trial; and while I have been at much expense to keep a man right on the job since the 28th of March in caring for my 140-colony apiary, I feel that I have been well paid for the expense, and my output per colony for the season will be above the average in the San Bernardino Valley. I have visited my apiary and directed the work at least once a week to keep things moving in the proper way. One of the reasons for my good crop was the introduction of good queens last summer and autumn, nearly all of which made me big profits by gathering large quantities of honey. My ambition is to become an extensive beekeeper on a little more intensive lines that is usually followed nowdays.

BEEKEEPING IN THE SOUTHWEST

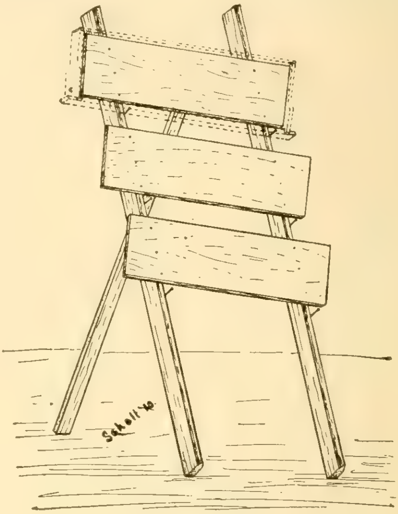
Louis H. Scholl, New Braunfels, Texas.

FASTENING FOUNDATION IN SHALLOW FRAMES

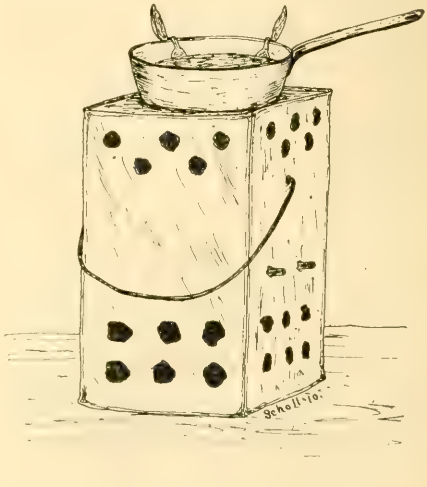
The writer is amazed at the many and very awkward ways in which different beekeepers fasten foundation into the frames they use. A very common method is that of heating a knife-blade, and, after laying a sheet of foundation in the inverted frame so that its edge extends about ⅜ of an inch beyond the center of the top-bar, running this blade over the edge of the foundation until it adheres firmly to the wood. When the frame is turned over into position again the foundation hangs in the proper place in the frame. There are also several foundation-presses that fasten the foundation in a like manner. But one of the greatest objections to such methods is the loss of the ⅜ inch, or often more, of foundation entailed in such fastening. While this may seem to be only a very small item, this loss amounts to a good deal when the number of frames to be filled with foundation runs up into the thousands. And another serious objection to such manner of fastening is that the foundation does not always remain in position, but often falls down. This depends a good deal upon the temperature when it is pressed to the top-bar, and the length of time the supers may have to stand before being placed upon the hives. It is also impossible to depend on such fastening of foundation when the supers so filled have to be hauled to outyards and over rough roads.

My experience with various methods has taught me that the melted-wax plan is the best and the cheapest. Of course, I would not use the slow methods employed by some beekeepers. Holding a board into a frame in order to get the foundation spaced properly, while the frame rests on the knee, and then pouring melted wax along the foundation and top-bar, is a cumbersome and tedious way indeed; yet I have seen this done by many beekeepers. Instead of this it is very easy to construct a rack to hold the frames provided with boards of the thickness to space the foundation exactly in the center of the top-bar. These boards slant downward toward one end to allow the wax to run along the foundation, which fastens it securely and easily. Nails driven into the uprights just below the spacing-boards act as frame supports, as shown in the accompanying illustration.

Any cheap wax scraps are used, such as are even too inferior for the market; hence there is a considerable saving in this as compared with the high price of the foundation that is wasted with the above-mentioned methods. This saving is still greater since the same wax can be used again and again every time new foundation is to be put in. This is especially important with us, since we must fill our frames with foundation many times during the season, or each time when we cut out the bulk comb honey and get the supers ready again. After the honey is cut out, the frames are scraped clean of the wax that remains, and this is then used to fasten the foundation.

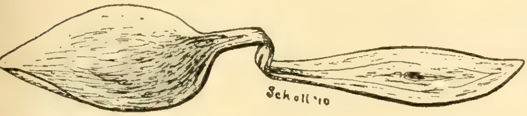


Scholl's frame-rack.



Scholl's fire-pot.

Any kind of stew-pan may be used for melting the wax on either a gasoline or oil stove, a charcoal-furnace, or a cheap fire-pot made out of a five-gallon honey-can as shown herewith. The spoons used are very cheap tin ones, costing about ten cents a dozen. We bend the handles as shown, so that they may be hung over the edge of the stew-pot and not fall into the melted wax.



This method can be employed for all kinds of frames, as we use it for deep frames as well as the shallow ones. No grooves are necessary under the top-bar to receive the foundation sheet. On the contrary, they are in the way, as it takes so much longer to insert the edge of the foundation into these, and, besides, they weaken the top-bars materially. And such grooves do us no good when we fill our frames again and again, as it is out of the question to clean the grooves of the wax with which they are filled. The same holds with the groove-and-wedge plan of fastening the foundation. After the first time we never use the wedges again, but simply leave them in, stuck down with wax, and fasten the foundation right over them with melted beeswax. Thus they are a needless expense to us. What we want is just a plain top-bar without any grooves or wedges.

Scholl's method of fastening foundation for bulk comb honey.

* * *

CACTI AS HONEY-PLANTS.

In reply to your inquiry from South Africa regarding the above matter I wish to say that this subject was discussed by me in detail on page 542, April 15, 1907; and since I have had several inquiries on the subject during the last year or so it may be well to reproduce some of my remarks.

> The "prickly pear," the common name for our large-leafed cacti (*Opuntia Englemanni* Palm), is sometimes of much importance to the beekeeper, especially during a season of partial drouth. Several years ago a late "cold snap" destroyed various kinds of bloom in the latter part of March, and retarded the blooming plants for April so much that there was nothing for the bees from which to replenish their stores, which were soon consumed since heavy brood-rearing had been going on during the extended favorable weather previous to the frost. It also happened that the season so far had been a dry one, and there had not been an overabundance of bloom. This, together with the late frost, made all a very discouraging situation, and I was "figuring" on how many barrels of sugar I should have to feed, when, lo and behold! a light rain saved me. The "prickly pear" cacti came into bloom and yielded such an abundance of nectar that not only the brood-chambers were filled but some was stored in the shallow extracting-supers in a little more than a week's time. The bees built up with astonishing rapidity to rousing colonies in a short time, and were in the best possible condition for the main mesquite flow, which commenced early in May, since it was also delayed for about a month on account of the frost, otherwise blooming in April. These cacti are very common throughout southern and western Texas. In southwest Texas, where the photo on page 558 was taken, the ranches were covered over large areas with a thick growth of prickly pear, so that neither man nor stock could pass through except along the cleared roads or a few open paths. Often, as far as we could see, there was nothing but prickly pear and mesquite trees, the cacti sometimes towering from eight to ten feet high. The thick, green, pear-shaped leaf-like stems or joints, from which the plant gets its name, are generally mistaken for leaves; they are very thick and succulent, and bear bunches of small stout bristles and longer barbed spines; hence it will be seen how such a plant can "keep on growing," even during dry seasons, from the "water" stored up in these joints. Consequently the cactus plants had not suffered during the dry spring mentioned, as did other plants; and as the roots are very shallow, or near the surface of the soil, and widespread, the light rain, coming at just the right time, helped these wonderfully, while it had little effect on other vegetation. Both an abundance of honey and pollen were obtained, the honey being light amber in color, of heavy body, but "stringy"—so much that it fairly draws out into "strings" when very thick. The flavor is very rank; and from reports of other beekeepers, as well as from my own experience, it is too rank for human food, while it is quite valuable for brood-rearing, especially during an off-season as here related.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

RAISING BUCKWHEAT.

"Please tell something about buckwheat culture. If we beekeepers who have land would all make a specialty of buckwheat for our grain crop it seems to me we could make it profitable."

The first thing to be considered is the preparation of the soil. Those most successful with buckwheat as a grain crop in this locality plow the ground in early spring before the land is generally dry enough to plow for other crops. It is now allowed to lie till the general "spring work" is done, when it is gone over with a harrow and "fined up," which kills most weeds and grass which may have started. Then at sowing time it is harrowed again; or if that is not sufficient, it is cultivated with a two-horse cultivator till the soil is made fine and mellow. This fits the soil to better advantage than can generally be done if the plowing is not done till the time of sowing. The buckwheat is still sown by some "broadcast," but most people use the grain-drill.

There are two or three kinds of American buckwheat—the black, the gray, and the silverhull, all having nearly the same habit of growth. Then there is the Japanese variety, which was introduced into this country some forty years ago, which is pretty well liked as a grain crop; but it is not nearly so good as the others for the beekeeper, as it is inferior in the yield of honey. There seems to be a tendency at the present time to sow mostly the American varieties, much to the liking of the apiarists.

Buckwheat is a plant that is very branching in its habits as compared with other grains, each branch giving many flowerets which "fill" with grain rather better than does the highest top stem. For this reason three pecks of the grain is considered an abundance to sow on an acre.

The time of sowing is from June 25 to July 10, as a rule, here in central New York. But there are a few farmers who will sow as early as June 10; and where thus sown, if the fields yield nectar, it is a curse to the beekeeper rather than a blessing, as it will bloom before basswood gets past, thus "throwing" much of what would otherwise be fancy white honey into No. 2 or 3 grade for the markets. Others do not sow till from the 15th to 20th of July; and these late-sown fields are a great blessing to the beekeeper, as they help colonies short in stores to stock up for winter, and give the colonies a greater proportion of young bees for winter, thus insuring against spring dwindling, other things being equal. The reason for the very early sowing is not apparent, except for some "whim." But it is conceded that the grain "fills" to a much greater extent when cool nights prevail at just the right stage of growth than can be possible where the nights are hot and the weather dry. And the yields of grain show this where the frosts hold off till the grain is fit to cut. But some years we have an early frost, as was the case last year, where hundreds of acres are killed so early that there is nothing left after the frost worth the harvesting. In such case the fields are left untouched, for there is some little value in this frost-killed vegetation as fertilizer.

As to the yield, there is a wide range. If the nights and days are just right, forty bushels to the acre is sometimes secured. At other times only ten bushels to the acre may be the result.* Why do I speak of the days? Because the rule is that, in proportion as the bees store honey from the buckwheat flowers, in about that proportion will be the yield of grain, as the flowers are fertilized by insects. Some years when there is great humidity the nights will be cool, with a fog over the fields till from six to seven in the morning, when the "sun will break out," and a person's clothes soon be wet with perspiration, continuing thus all day, when a cool dampness will again settle down, and the next day be a succession of what was passed through the day before. With such days as these, after such nights, the bees "buckle" in all day long, and the results as to pounds of nectar gathered will be equal to that from any source with which I am familiar—even basswood not exceeding. But more often the nights are warm; the sun rises clear and bright; the bees start out with a rush, gather quite rapidly till ten to eleven, with nothing "more to do" that day. Then with dry hot south winds or rain, or cold north winds, during the whole time the buckwheat is in bloom, no more nectar will be obtained than is needed for brood, and the end comes with little more honey in the hives than at the end of basswood.

The matured crop is generally cut with a binder, as this is the quickest way. Just as soon as it is dry enough to thrash it is drawn and thrashed before it has time to "sweat." The straw is considered worthless except for bedding or as a fertilizer.

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* The price of the grain ranges from 85 cts. to $1.30 per 100 lbs., according to the average yield per acre.

GENERAL CORRESPONDENCE

WHY THE SMOKE METHOD OF INTRODUCING IS SUCCESSFUL

Requeening without Dequeening

BY ARTHUR C. MILLER

Continued from last issue

The question is often asked why the bees accept queens introduced by the "smoke plan." Briefly, it is this: Confined and smoked bees are in "distress," as shown by their "roar," and bees in distress know no strangers. Queens will be accepted under many other conditions sometimes, but by "distress" conditions always. Smoking and confining is the easiest and quickest way for the beekeepers to produce such conditions, hence its use.

All do not agree with this assertion, and stick to the theory of odor, despite the evidences against it. I append a few of the different claims, and also some of the conditions where the odor theory does not apply.

It has been asserted that the smoke so fumigates bees and queen that they all smell alike, and that the success of the plan is in the uniform odor. But running in queens with smoke and *not confining* the bees was never widely successful; and, so far as known, smoke smells no stronger now than formerly. Furthermore, as good results can be secured by closing the entrance and getting the bees roaring by much pounding or jarring, and then running in the queen as by use of smoke; but it is neither so quick nor so easy. Again, bees shaken from their combs, and confined in a cage, will become quiet and form a cluster, hanging as still as a swarm, save, perhaps, for a few uneasy bees. A queen may be put into such a cage, and will be accepted by the bee as soon as she reaches them. Neither uniform odor nor turmoil is present.

Again, a queen may be removed from among her bees, and in her place the queen from another colony in the same yard be placed, while the first queen is put in the second one's place. The bees notice no change, and the queens continue their work as before. The bees have failed to notice any different queen odor or the odor of the operator's fingers, which, on the bees' part, is very inconsiderate of the feelings of the champions of the "odor theory."

From a swarm marching into a hive the queen may be removed and another dropped among them. The procession keeps right on with the band playing, and the new queen is perfectly at home with them. And this is true, even if the new queen is anointed with an odor commonly repugnant to the bees.

A queen-cell from one colony may have the queen out of it in a minute after it is put in another colony; but if the second colony is ready for a virgin queen they pay no attention to her and her supposed alien odor.

A comb of brood from one colony may be put in another colony; but there follows no sign of resentment on the part of the bees toward the strange-smelling(?) comb or the rapidly emerging young bees.

In other words, the odor of alien drones, of young workers, of queens of various ages, and under sundry conditions, does not attract the attention nor arouse the antagonism of the bees. By ignoring all theories of odor, and following the plan of "distress," we can successfully introduce ninety-nine per cent of all queens to colonies in almost any condition, and that is good enough for practical dollar-and-cent beekeeping.

Some years ago attempts were made to introduce young queens to colonies having a queen, for the purpose of having the new comer supersede the old queen. Ripe cells were used, and virgin queens; but the successes were few and the failures many, partly from the difficulty of introducing virgins and partly from obscure causes. The matter was soon abandoned, save that now and then some individual makes another attempt. The use of virgin queens was based on a theory of getting rid of the old queen just before swarming time and so avoid that trouble. But just before that period is just when the bees are not ready to accept or tolerate a virgin. Where one was accepted and did supersede the old queen, conditions may have been such that no swarm would have issued that season any way. In other words, the internal conditions of the colonies were unknown.

I, with the rest, was much interested in the attempts; for if it could be made to work it might eliminate swarming; but my efforts were no more successful than those of the other experimenters, and I dropped them. When I finally got the direct introduction to working I recalled the earlier attempts at forced supersedure and began another series of experiments with it. I was not very successful in using virgin queens; for, while they would be accepted, they did not supersede the old queen often enough to pay, so I turned to young laying queens. The results were enough better to encourage me to follow up the matter, and I believe that we shall yet be able to do our requeening without dequeening. It can be done now in a large per cent of cases, but evidently we must know more about the internal conditions of colonies before we can intelligently say just what to do and when to do it.

I believe that, in a general way, the new queen must have the physical advantage of the old one. In other words, she must be young, nimble, and light in eggs, while the old one must be heavy with eggs, and hence unable to defend herself successfully from the attacks of the newcomer. There are many things which I have taken note of, such as relative ages and conditions of the two queens, time of year, nectar flow, weather, and brood distribution, kind of combs, where queen is run in, etc. The last two items should be explained. It is not at all unusual for a queen to confine her operations to one part of the hive when that part contains old combs and the rest new, or where the brood-nest has a new comb put in the middle. If the new queen is run into such a hive, and on the side opposite to where the old queen is, or is run in at the middle and passes to the broodless side, she may set up business there and become even heavier than the old queen before they meet, or they may not meet at all until the winter cluster forms. I can imagine a colony so fixed forming two winter clusters, for it is virtually two colonies, but have never had it occur. I had a case where the reigning queen (one year old) confined her activities to half of the brood-chamber after an unattractive comb had been put in the middle. The bees built one cell in the other half, and, before it hatched, laying workers set up business; and when I discovered it, the original queen was busy in her side, the young queen was laying beautifully in her part, and the laying workers were enjoying their new activities undisturbed. This was with Cyprian stock, and is cited to show the extreme conditions which sometimes arise. Plurality of queens in Italian stocks is really quite common—seemingly more so since the introduction of the light bees of Cyprus and Syria and the rise of the "Golden" Italian. Whether it is due to the mixture of such blood or to closer observation, or to both, I do not know. However, such conditions should be borne in mind when experimenting in requeening without dequeening.

Such a system will be of too much value, if perfected, to be delayed while one individual works it out; so I have brought it to public notice that many may study it and sooner find its possibilities and limitations.

Providence, R. I.

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APICULTURAL NOTES FROM GERMANY

BY J. A. HEBERLE

I wish all a good honey season for 1914—especially the friends in California, whom Fortuna overlooked. I know how a beekeeper feels who has many colonies to care for, and for his pains has to supply the winter stores. The honey crop in Germany in 1913 was one of the poorest for many years. The weather was unusually cool and wet. Berlin had the coolest June in 60 years. In Switzerland it was the coldest summer recorded.

PEREGRINATING MEETING OF BEEKEEPERS.

The beekeepers of Germany and Austria-Hungary meet once a year. One year they meet in Germany, the next in Austria or Hungary upon invitation from some beekeepers' union. Usually there are several invitations. The association decides which to accept for the next gathering. These meetings have the euphonious name of "Wanderversammlung Deutscher, Oestreichischer, und Ungarischer Bienenwirte." They are thus called because they change their place of meeting every time.

The inviting organization arranges an exposition of the products of the bee. It provides for social entertainment where new acquaintances are found and existing ones cultivated. The last day is usually devoted to an excursion to some interesting place under proper guidance so as to make it very pleasant.

The management, with a president at the head, provides for a series of lectures by eminent men well versed in the theory and practice of beekeeping. A small charge is made for admittance to the fair. This generally defrays the expense of the local organization. Donations for prizes are received, some quite valuable, so that the exposition is also a place for fair competition.

In 1911, at Constance, the invitation to meet at Berlin in 1913 was accepted. The Prussian Government gave 3000 marks, and the general Government 1000 marks toward defraying the expenses of the fair. Notwithstanding this, there was a deficit of from 7000 to 10,000 marks. The bee-journals make all kinds of comments that are of local interest. One editor says: "I told you so at Constance." He had advised us not to accept as a place of meeting a city with millions of inhabitants. In these large cities there are so many kinds of entertainments that they will care but little for a beekeepers' fair. At present it is not known to what extent the fair was patronized. If the deficit is due mainly to the small number of admissions, then the beekeepers will hesitate about inviting and accepting as a place of meeting these larger cities.

The fair lasted from July 24 to 30, and received the praise of all who visited it. This was the 58th meeting of this kind. I think it speaks well for this kind of gathering of beekeeping provinces to have endured for 58 years.

ISLE-OF-WIGHT DISEASE.

Some time ago Mr. Joseph Tinsley, of England, had an article in GLEANINGS about this malady. The commissioners appointed to investigate the plague published a report in the *Journal of the Board of Agriculture.* Dr. Graham Smith and others found that the parasite *Nosema apis* caused this dreadful disease that ruined so many English apiaries. This parasite belongs to the animal kingdom, while most of the bacteria that are known to cause diseases in man and animal, also those causing foul brood, stone brood, etc., belong to the vegetable kingdom. *Nosema apis* is a near relative to *Nosema bombycis,* the parasite that caused the pest of the silkworm, *Pebrine,* that ruined the silk industry of southern France 60 years ago. The damage was estimated at a hundred million dollars.

Prof. Dr. Zander discovered the parasite in 1907, and with Prof. Doflein, of Munich, called it *Nosema apis* to show the relationship to *Nosema bombycis.* Prof. Zander has studied and investigated this parasite closely, and states that if a bee is once infested it will die. It seems very difficult to prove the presence of *Nosema apis.* A great danger is the fact that the contagion may be contracted outside the hive. The watering-place is considered especially dangerous. The possibility of outside contamination cannot be readily located and eliminated. Some three years ago several investigators found that *Nosema apis* is present in many apiaries. Only one reported great loss and considered this parasite very dangerous. This was Prof. Zander. The malady caused by *Nosema apis* in Germany is known as "contagious dysentery." If *Nosema apis* is the sole cause of the Isle-of-Wight disease, it will be well to keep an eye on it. It may be that bees in very good health may, to a great extent, be immune. There will be more light on this before long.

THE ENGLISH SPARROW.

Mr. A. J. Wright, page 638, 1913, considers this a very dangerous enemy of the bees. I wonder if that is the same bird as our common sparrow. With one exception I never heard complaints from beekeepers. The bees are kept so near houses that if the sparrows indulged in a bee diet it would surely have been noticed. The bird is found here in great numbers. I know them as impudent and greedy feeders, molesting useful birds, and consider them a nuisance, but vegetarians. The exception above mentioned was ten years ago. The reporter of the *Wiener Bienenvater* observed at the school apiary a sparrow that took from the entrance of the hives dead and live drones. The drones were just driven off, and the reporter concluded the sparrow ate only drones. Soon afterward the man in charge of the apiary shot a sparrow that had a worker in its bill and many parts of workers in its stomach. Have you or any of your friends ever heard of sparrows molesting bees?

THE FINEST HONEY IN THE WORLD.

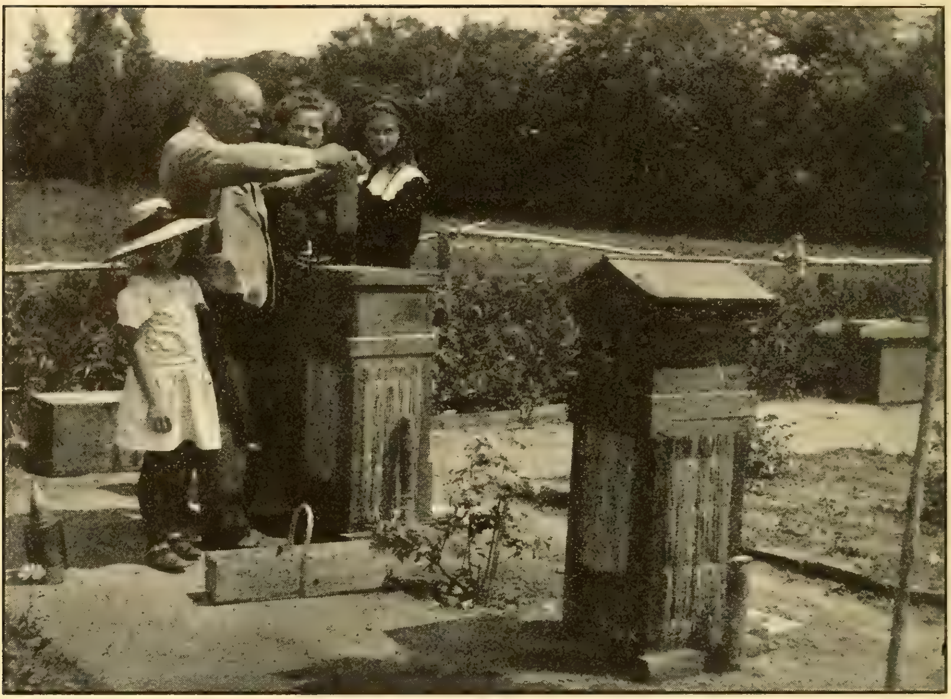
This, according to the *Rheinische Bienenzeitung,* is from the nectar of wild roses near Kallianu, Greece. It added that wealthy Turks buy all this honey at a dollar a pound. A few tons at that price would help a needy beekeeper toward affluence.

FOURTEEN THOUSAND COLONIES STARVED.

It is reported that on the heath-field between Holland and Germany 14,000 colonies died of starvation. Beekeepers send their bees by trainloads to gather nectar from the heather (*Erica vulgaris*). On account of the unusually cold and rainy weather the bees could not gather any nectar, and the owners did not realize in time the precarious condition of the bees.

IN UNION THERE IS STRENGTH.

Beekeepers in general are aware of the truth of this saying, and the leaders of the larger organizations have tried to unite all into one powerful union so as to bring enough power (numerical strength) to bear on the legislators and the general Govern-



Auguste Malachowski giving his daughters a lesson on bees.

ment to modify the laws that are now in force to suit their wants better. They want a foul-brood law, and especially a law to protect the beekeepers from artificial honey and the unfair competition of inferior foreign honey from Cuba and South America. The union, according to previous arrangements, was to be effected this year in Berlin at the Great Fair. This would have been the event of the year; but, alas! the leaders agreed to disagree. Every one connected with the endeavor to unify blames the other fellow. This is sad; but it is hoped that this consummation, devoutly to be wished, has only been postponed.

Germany, Nov. 22.

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CAUSING SWARMING BEES TO CLUSTER IN A BOX ON A POLE

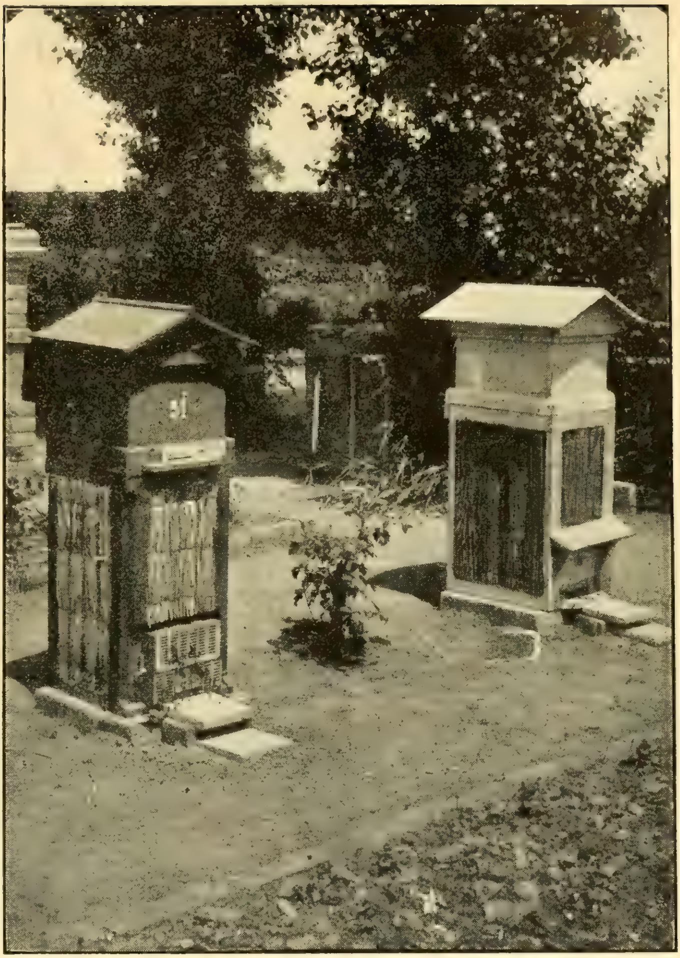
BY AUGUSTE DE MALACHOWSKI

Up to the present time I have practiced artificial swarming; but this year I let the bees swarm naturally. I inclose several photos to illustrate my plans. To trap a swarm is the easiest of all things; and the swarm has no time to cry for quarter, for it finds itself already housed. I proceed in the following manner.

I have a pole about 10 feet long, from which is suspended a sort of triangular box with one old frame inside. When the swarm issues I rub this box with a plant—a mint (*Mentha aquatica*). I hold this contrivance in the midst of the flying bees, and the swarm stops immediately. This plan is very simple and practical. I carry away my box, open one of my hives, give it a slight blow, and, presto! all my bees are hived. To retain them I always exercise care to give them a frame of brood. I advise all beekeepers who practice natural swarming to follow these directions, and then they will not have to attend the severe school of experience by caging a swarm perched high in a tree.

In all this season I have trapped thirty swarms; and I trapped them all, without exception, with the aid of *Mentha aquatica*, and generally even by hand. Spectators have looked with wonder to see the bees mass themselves around me, humming, and alighting on my hands, my person, and even crawling into my vest pocket. As the people of my country are superstitious they looked on me as a sorcerer. I hope that, with the plan I propose, the problem of catching swarms will be solved, and every beekeeper can have that pleasure. This plan is to be especially recommended in localities where there are large trees.

Here is one more innovation just introduced at my place for hiving swarms; I made a box of sufficient size wherein I placed my swarm-catcher supplied with bees. I closed the lid, crammed the end of a stocking into the opening on top of my Elita hive; then I lifted it and gave it a light rap, when, behold, my bees were at the bottom of the box; and seeing an opening in front of them they hastened to enter the hive. As the front is furnished with glass above, I could see the entire procession; and in case it did not have room immediately, as my box is supplied with screened holes near the bottom, I gave a few puffs of smoke, and, lo! my bees made a start. By the aid of this plan, not a bee flew away, and all passed off as quietly as could be desired.



Two " Elita " hives, the first having seven frames, and the second nine.

A few words in regard to my frames. My manner of proceeding is very convenient, for it permits of changing the frames at will, putting them either above, below, or in the middle. The photograph shows two of my frames fitted with comb-stays and also another one containing comb and bees.

Katarjino, Gov. of Cherson, Russia.

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CONTROLLING SWARMING AND MAKING INCREASE

BY " THE OUTLAW."

With the new season I found myself imbued with the usual hopes and aspirations of the amateur apiarist. The predominating idea was that of making increase. I wanted to see my one colony grow into several. Bee literature in the past contains its quota on the subject of making increase; but in spite of all that has been written on the subject I will wager a month's salary that the major part of the increase for this season will be made by natural swarming. From my observation I have come to the conclusion that, while the novice, the first few seasons, boasts that natural swarming is a thing of the past, in *his* apiary at least, he is apt to forget the fine-spun theory of the non-swarming apiary, as the seasons speed by.

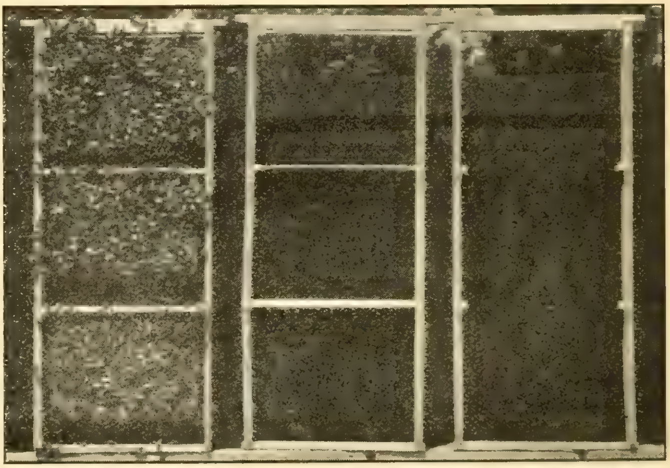
Here it may not be out of place to recall what is probably one of the best records in

Malachowski's swarm-catcher on the end of a pole.

the matter of making increase. For definite data I will refer the reader to Rambler's writings as published in Gleanings for 1902. There Rambler's slate will show that on October 1st the 50 nuclei he had purchased the April before had reached the grand total of 300 colonies. At the time, I asked him what manner or method he followed in making his increase and he replied, "Oh! I just let them swarm and then catch the swarms." A verification of this statement will be seen in the published pictures of his Taco Taco apiary, for in all his photos his swarm-catching device, consisting of a bamboo pole with an oil-can hung on the end, occupied a very prominent position. However, I am not going to advise letting the bees swarm naturally, as there is a lot of energy and time of the bees that go to waste by reason of the natural-swarming process.

The theory of management which, for want of a better name, I will call the "outlaw method," is one that in years past I have practiced in almost all kinds of climates and localities under all kinds of conditions; and where the apiarist desires but a moderate increase, and all possible results in the production of honey, I consider it the best. The method is based on the theory that, while it is natural for bees to cast a swarm, the colony must first reach a certain condition before getting the swarming idea, and that, if the colony is kept in a *proper* condition up to and until the heavy honey-flow starts, the idea of swarming never matures. A colony of bees under normal circumstances will not start the construction of queen-cells until the brood-nest is in this certain condition. The method here advocated is to go over the apiary regularly once a week and take out from those colonies which are approaching the danger-point a frame or two of sealed brood, replacing with empty combs or full sheets of foundation. This must be done just enough to hold down the idea of swarming, and it can be done so that, when the principal honey-flow comes on, the colony is in proper shape to handle it. So much for the prevention of swarming.

In making the increase, place six or eight of the frames of sealed brood and the adhering bees in a hive, always taking care to place a frame of honey outside of the last frame of brood if the hive is not completely filled, then give to the colony thus formed a ripe queen-cell. The entrance of the hive



The Malachowski frames with and without the support.

should always be stuffed with grass, tight enough so that it will take three or four days for the bees to clear it. This prevents the bees from deserting the brood and returning to the parent stand. This new colony will, as soon as the queen gets to laying, be on a par with the old colonies. The bees of that colony will not have any desire to swarm during the season, and should produce as much honey as the average colony in the yard. The reason why the original colonies do not swarm when treated in this way is that, by removing the brood, the strength is somewhat reduced, which no doubt has a bearing; but the principal cause is that there is vacant comb in the center of the brood-nest, which place it is always the desire of the bees to have filled with brood before desiring to swarm. There is also the further reason that, having a great amount of unsealed brood in the hive, the bees are not in condition to desert so much unsealed brood.

If this method is followed out carefully when the honey-flow begins in earnest it is possible to have every colony in the yard, both new and old, of almost equal strength, which is something that all practical apiarists desire. It might also be stated that the weak colonies should also be built up with the aid of the brood that is taken from the strong ones.

In conclusion I will say that the foregoing is but an outline. The locality, time of honey-flows, and the desires of the apiarist, will in each case have a bearing as to just what results are obtained. In the average apiary in the North where the honey-flow commences about the first of July, if the object is to secure the greatest amount of honey possible, after building up the full quota of weak colonies that are found in the average apiary, making an increase of 20 per cent is about the proper amount. The great advantage of this sytem is that in all stages the queens have an opportunity to work at their full capacity, and are not confined or restricted to laying in a comb or two as are queens in small nuclei, and this advantage also applies to what the bees themselves are capable of doing. It is a well-known fact that an average colony of bees capable of gathering its full quota of surplus nectar, if split into two divisions, is capable of making only a living, and the surplus received is nothing.

Auguste Malachowski hiving a swarm.

A NOVICE IN A BEE CAMP

"*Beekeeping is clean, clever, humanizing, open-air work.*"

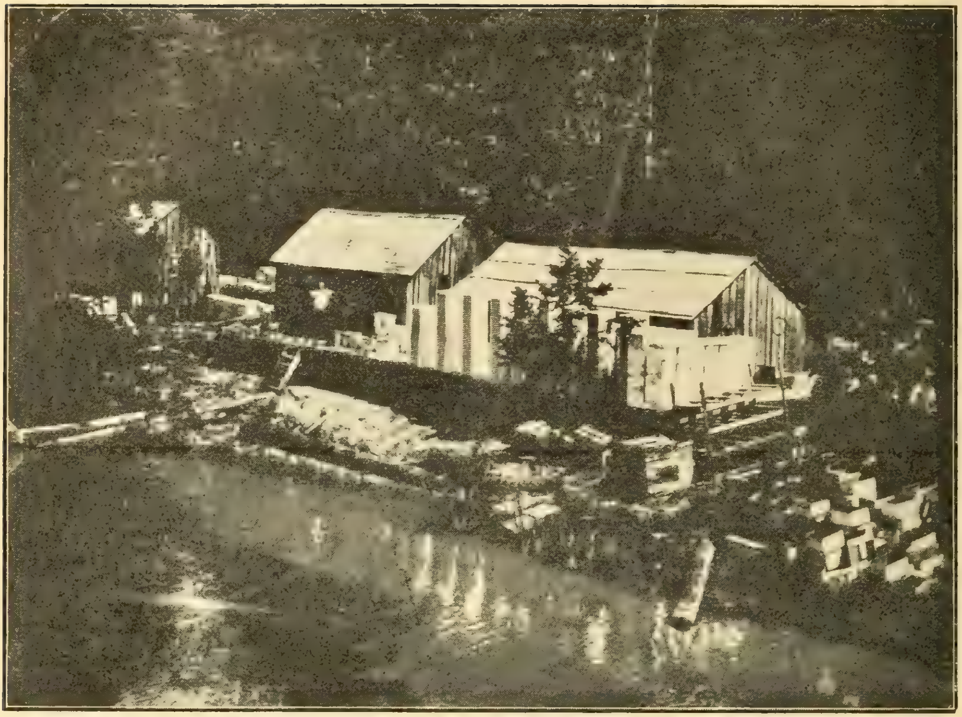
BY D. M. THOMSON

[Mr. Thomson, the writer of the following article, is one of the men whom we sent down to Apalachicola to help Mr. Marchant last winter. As he says, the experience was quite new to him; but, like the true Scotchman that he is, he looked upon the somewhat wild manner of living in a philosophical manner, and was not easily disturbed by the bees nor by the "snake which slept in the loft."—ED.]

Novice, beloved of all beekeepers throughout the country, probably indorses the above motto. So does the writer, hence his novitiate.

On a freezing cold day in February this novice boarded a train in Medina, Ohio, bound for the sunny South. The thermometer was low, but his spirits were high, for he was going to participate in the greatest venture of modern times in the whole wide bee world.

Time was when travel was a great adventure; but in these days of warm and luxurious Pullman cars no one need venture to



The buildings at Randlett's Landing as seen from the deck of the steamer on the river. The building at the extreme left is the sleeping quarters (Saints' Rest); in the center, the kitchen; at the right the extracting-room and work-shop.

hesitate on a journey, however long, in this country.

As the train sped southward, evidences were everywhere that spring had come. Snow was "going, going, gone," though a few icicles were still to be seen on the rocks. Green fields, with skipping lambs, began to appear; and in two days our novice was sailing in a stern wheeler down the River Apalachicola, in northern Florida, amid luxuriant, semi-tropical forests. It was a strange experience to come, thus quickly, out of the frozen North into summer warmth. I retired early, for the steamer was to touch Randlett's Landing in the small hours of the morning. Coming on deck shortly after daylight the purser intimated, "Next stop for you all."

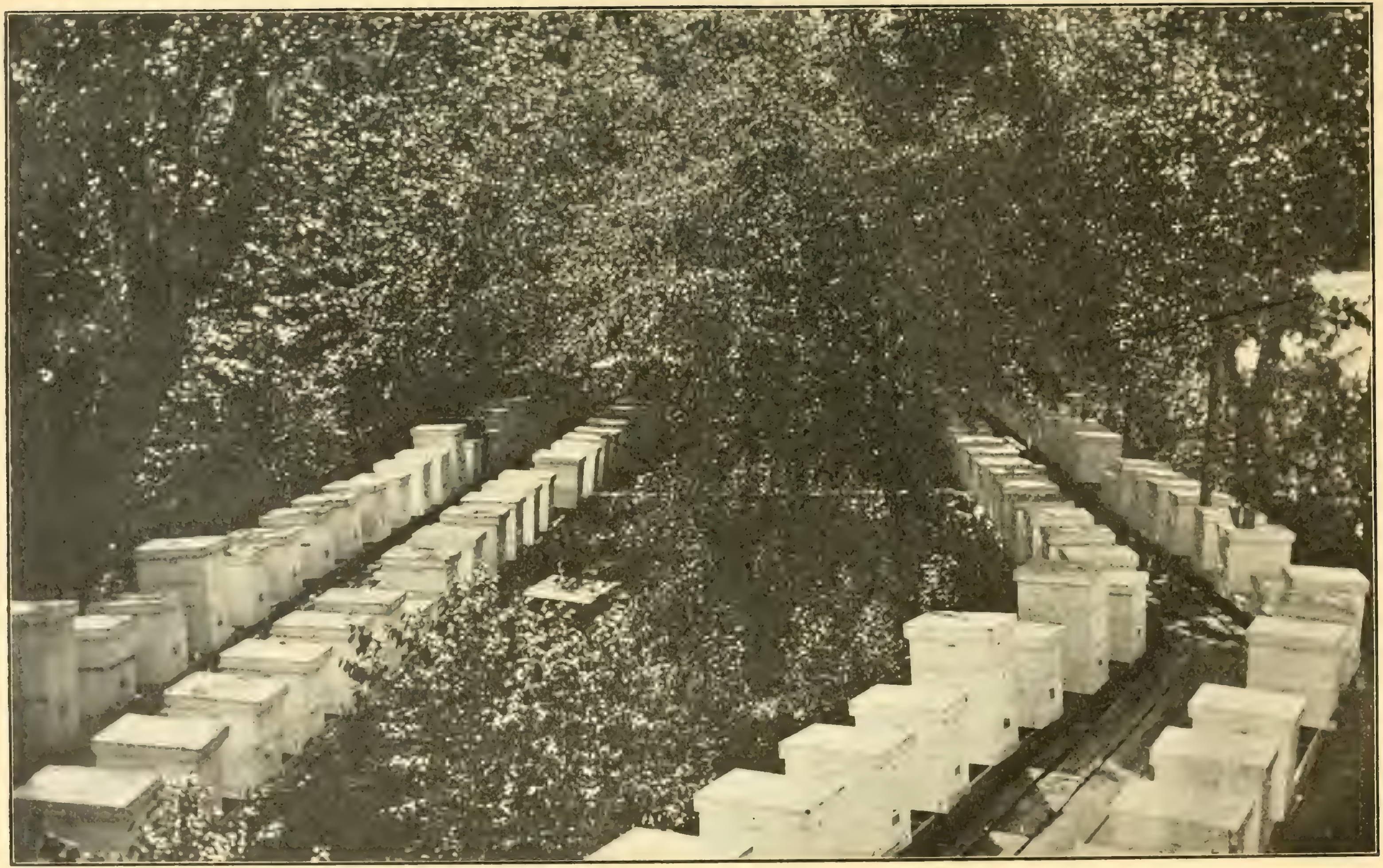
Here on a bend of the river, right in the heart of the illimitable forest, the camp is situated—the kitchen, fittingly named "Liberty Hall," in the center; the workshop below on the right, and the "Saints' Rest," or sleeping-quarters, on the left; and around the camp, "The Home of the Honey-bees," on raised platforms, because of occasional floods, stand the hives, to the number of three hundred and more, each full of busy life from early morn till dewy eve.

Breakfast was set, despite the early hour, and I was made heartily welcome. And what a repast! Gentlemen! "Pickled eels' feet!" intimated my *vis-á-vis,* a veritable son of Anak. That happy note, struck at the very beginning of my novitiate, has been the note of the camp ever since.

Here and there the figure of our expert, Mr. Marchant, a name famous in beedom, moves about, busily at work among the hives. Sometimes he sings to himself; sometimes a cloud in the sky is reflected in his sunburnt face. It has been a trying season; but now every bee has gone mad with work. A deep vibrating murmur is upon the air. "Just listen to the bees, now! Fly, my bullies!"

The young bees gambol in front of the hives and around the already "swelled head" of Novice. The workers seem to fill the blue sky as they dart hither and thither on their way to gather pollen and honey.

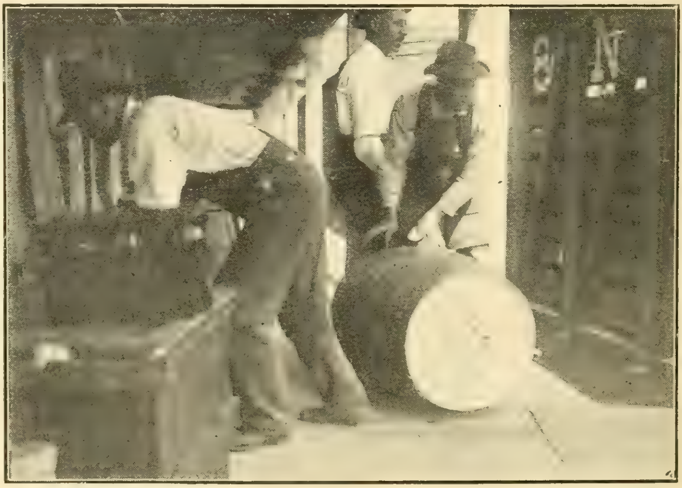
Many sounds are heard from the long workroom. A small gasoline-engine putt-putts and whirrs as a sanding-wheel screams against the nucleus-braces, turning them out as smooth as glass. The twanging of a wire as it is drawn taut in a frame, and the sound of hammering added to the din. In one



A view of the Apalachicola apiary from the roof of the workshop.

Ernest Marchant, the man to whom the success of the Florida venture is due. (He would be better looking if his face showed more clearly.)

corner a workman is fixing sheet after sheet of foundation in the frames. This is one of the wonders, beekeeping having worked a revolution in methods besides saving the time of the bees required for wax-making. It is one of the clever things spoken of in my text. The shadows are lengthening. "Time to quit, boys!" Work is finished off and benches straightened up, and all hands rush for a refreshing plunge in the river, and then supper, as Pepys would say.



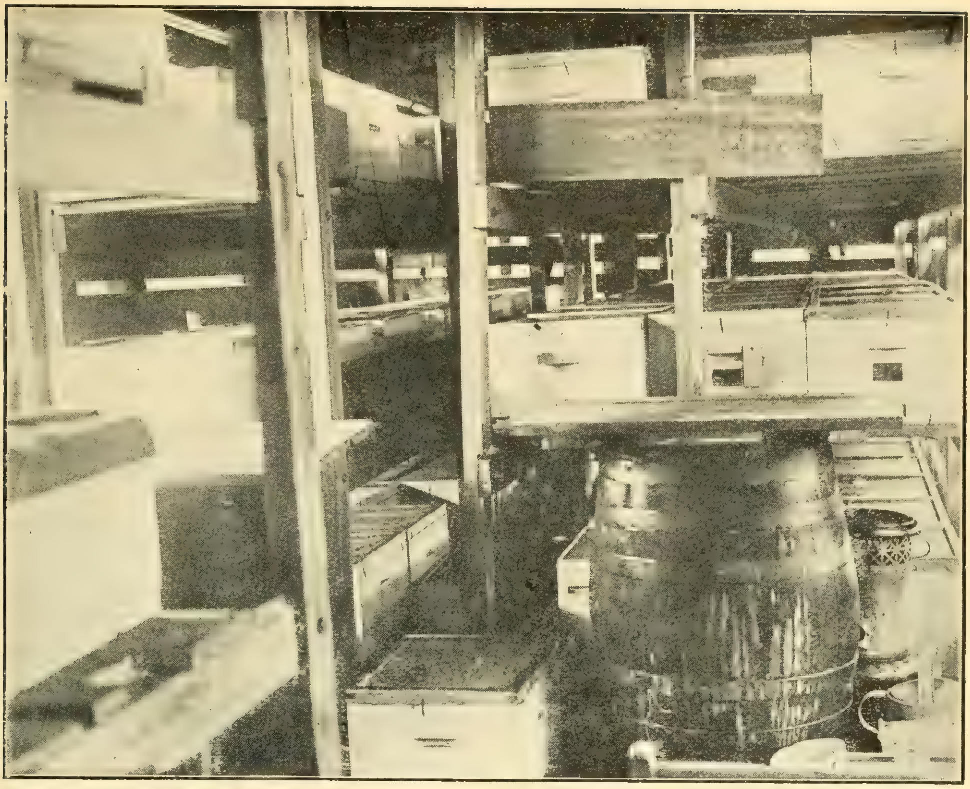
Unloading the honey sent with the last car of bees. In all there were nearly twenty-five barrels or over 13,000 pounds.

The bees, like time and tide, wait for no man, and supplies must be ready. Work there is and a plenty; for when the bees go north again in May the three hundred colonies will have increased to nearly a thousand, and the one carload will have become three. Will Marchant succeed? Succeed! Why, that's "his middle name."

But all work and no play is not the divinely ordained order of things. And so the desperate, energetic humming of the countless bees, and the noise of the work-room, are constantly shot through with a snatch of song or a sudden peal of laughter as the soft, leisurely drawl of the Southerner falls on the ear in some quaint yarn or merry quip. Once in a while, shortly before dusk, the gun is shouldered, and fresh meat is brought into the camp. As our camp wit puts it, "If there is one thing I like better than a mess of squirrel, it is *more* squirrel." The river is at hand; and, after nightfall, fishing is the sport. A fish chowder, made by our camp cook, "would make a corpse rise up and clap his hands." I am hoping to be at one of these spiritualistic seances before I leave the camp. If you have never tasted southern dishes, grits, hoe-cake, hot biscuits, baked yams, etc., cooked to a nicety by a mere man body, served up with a flourish, and a "The banquet now awaits, gentleman," you have lived in vain.

Thus the days slip by as swiftly as the brown river flowing past the door.

Nature is very beautiful in this wonderful bee country. A fish splashes in the sunlight; a gaily colored butterfly flits on its seemingly aimless way. Overhead a buzzard sails against the blue of the sky; higher up, a hawk. A redbird floods the air with melody. A timber-raft drifts by on its way to the mill below. A bumblebee, the bassoon of the bee band, bustles in at the door and out



Interior arrangement of the first car. The aisle divides the car into four quarters, each of which contains staging for three tiers of hives. The two-by-fours were notched and then bolted together.

again. Pervading all is the monotonous hum, which is music to the bee-master's ear.

Sun and shadow, the sound of work, the song of the bees, laughing voices, the scent of the pines, the russet tints of the willows and maples, the fresh greens of the oaks and tupelos, the drab gray of the hanging moss, all combine in a flood of delicious color and scent and sound.

The sun sets in a softly luminous sky, such as, I fancy, is seen only in the South. A flight of cranes string noiselessly across the sky to their nesting. An owl hoots its eerie call. An alligator bellows in the swamp. The fireflies, surely the link-boys of the myriad horde of roystering night-insects, trim their lamps to lighten the beeman's heart with promise of good weather.

> "Silently, one by one, in the infinite meadows of heaven,
> Blossom the lovely stars, the forget-me-nots of the angels."

We go to bed, saying our childhood's prayer, "This night I lay me down to sleep." But the mosquitoes know better. Those who have never tended bees in a camp do not know how good life is. Beekeeping is indeed a fascinating pursuit.

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THE CONSTRUCTION OF THE FRAMEWORK FOR HOLDING HIVES IN A CAR

BY R. A. NUSBAUM

What is your method of staging a car for shipping bees? I understand you have it arranged much like the shelving used in poultry-cars. This allows a narrow passage-way in the middle of the car, does it not? Do you use 2 x 4 stuff entirely? How is it braced and bolted for the best results? How many hives deep on each side of car?

What objections do you have to using a double-deck hog-car? We will ship about 200 colonies from here to Pennsylvania the latter part of July, and should greatly appreciate any suggestions you may have gained through shipping the four cars from the South.

Duncan Falls, Ohio.

[The illustration shown herewith gives a good idea of the construction of the framework. Notice that we notch the uprights and fasten the horizontal pieces to them with carriage-bolts. Depending upon nails alone is rather unsatisfactory, and a little dangerous too, as we find by our own experience.

A double-deck hog-car has been considered, but there are a good many disadvantages. For instance, one cannot stand up on either deck; and to get from the lower deck to the upper one he would have to climb out of the door. There would be no aisle, which would necessitate walking over the tops of the screen when necessary to give the bees water—a proceeding that would be almost impossible when the car is moving rapidly.

One of the Ohio beekeepers, who moved bees down to Florida for the tupelo honey-flow, ordered a double-decked hog-car for bringing his bees back this spring; but after seeing it he decided that it would not answer. The framework that we use costs between $30 and $40, but allows three tiers of hives with aisle between, running the entire length of the car.—Ed.]

BEEKEEPERS I HAVE MET—BERT W. HOPPER

BY WESLEY FOSTER

Rumors kept drifting in from the famous melon town of the Arkansas Valley in Colorado of a beekeeper there who owned and operated something like two thousand colonies of bees. One of the most persistent rumors was to the effect that this particular man often went south and bought bees in Texas along in February, divided each colony into about five nuclei, made up express shipments, and took them to Colorado in time for alfalfa bloom. Naturally I was glad to meet Mr. Bert W. Hopper when the opportunity offered, for he is the man of whom I had heard so many reports.

Mr. Hopper is a hustler in every sense of the word. He buys and sells any thing in the bee line. Many of the neighboring beekeepers sell their honey to him, and he sells each year two or more cars of supplies. He will buy bees whenever the opportunity offers. Even though he does not want them he will soon find some one he can sell them to. He is a man under forty, I should say—large and rather heavy set. He thinks and talks nothing but bees, and never tires of the themes so common to honey-producers. He will not concern himself with doing the routine and detail work in bee culture. This he delegates to others. He will hire a man to drive the team to and from the apiaries, and he jumps on his motorcycle and gets to the yard an hour earlier, and leaves an hour later than the helper who hauls the loads. As yet he doubts the economy of keeping an auto to haul a beekeeper's loads. He has well demonstrated the practicability of operating colonies a long distance from home by use of the motorcycle; and he told me he was planning to motor to Texas this winter with his auto, taking his whole family, and then ship bees back in the spring. Loading a car of bees is not any more nerve-racking to him than loading a car of potatoes or apples would be for any other man. Mr. Hopper has done even more than rumor has it in the way of moving bees from the South. He has shipped a good many carloads. At one time he brought in one thousand nuclei, and I believe he got nearly a car of comb honey the first year from them. The last few years have been hard on bees, and his number of colonies dropped down to about 800, but he increased back to about 1400 before the end of the season. He thinks in apiaries, not in colonies. He will tell you about getting 150, 200, 400 cases of honey from a given yard. Most beemen tell you about getting five cases of honey from a colony. He has attended few bee conventions; but he reads every thing on bees that he can get hold of. His trade in honey is large, and a good share of his crop is sold in local shipments. He is superintendent of the apiarian exhibits at the Colorado State Fair, and exhibits quite largely himself. This is a help in selling his own honey.

The honey-house is of cement, one story only, and with a cement floor. The dimensions are about 40 x 60 feet, I should say, and the ceiling is about 15 feet high in front and nine or ten feet at the back. This room will house thousands of supers, hundreds of hives, a car of bee supplies, a car or two of honey, the automobile and motor cycle, and leave room for the work-bench and honey-extractors.

Mr. Hopper has a very nice house, somewhat like a bungalow in style, with about six rooms. He plans to build a larger house on the corner lot adjoining, which he is saving for the purpose. Upon this lot he had left growing several cleome stalks, which, by cutting out all but the larger ones, gave these an opportunity to see what they could do; and cleome on a favorable soil will nearly make a tree, covered with the large purple blossoms. There were hundreds of blooms on each stalk, and I do not know that it would be stretching the truth to say thousands. The trunks of the cleome trees, as I should call them, were from 1½ to 2½ inches in diameter.

Mr. Hopper's father, R. A. Hopper; his brother, V. O. W. Hopper, and his father-in-law, Mr. A. S. Parson, all of Rocky Ford, are also in the bee business, and the Hopper family own and operate most of the bees in the county. They now raise comb honey exclusively, although when first coming to Rocky Ford they produced extracted. The change was made largely because of the inroads of foul brood.

Boulder, Colo.

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EMOTIONAL METHODS IN INTRODUCING QUEENS

BY J. E. CRANE

To those who have handled bees for many years there can be but little doubt that bees are subject to like passions and emotions as ourselves. That they are subject to grief, affection, fright, anger, there can be little doubt. That these emotions can often be turned to our advantage in our care of them I think we shall all agree. It is also evident that bees can entertain only one emotion at a time. If a bee is angry we can not readily make it fear us. Or if a colony is thoroughly frightened they seem to lose all anger, and we can rob them of part or all their hard-earned stores without a protest from them. If a horse is frightened, its first impulse is to run from the object of its fright as quickly as possible, regardless of the voice of its master—it may be into a tree or over a precipice to its destruction. If a house is on fire its inmates instinctively rush to the doors, often without thought or reason, to be crushed to death in the crowd of others also trying to get out.

If a hive is filled with smoke the bees become frightened, and their first impulse is to fill themselves with honey and rush to the open. How often do we see most pathetic indications of grief among bees? They have lost their hive, or their brood or their queen, and they will fly for hours if perchance they may find what they have lost. By calling into action the emotion of grief we can introduce a queen with the greatest ease and safety. Take a quart or two of bees with honey enough with them to last twenty-four hours, and place in a swarming-box or small hive properly ventilated, but without queen, brood, or combs. They will soon miss their queen and brood, and in three or four hours their grief will become very pronounced. Now, without fear of loss, you can run in a queen from your yard, or one that has come through the mails, or even a virgin, and the bees' grief is turned to joy and rejoicing. You need not smoke them nor fed them nor pound the box. The next morning you can place them on a comb of brood with some honey, and all will go well.

The emotion of fear or fright has also been used very successfully in the introduction of queens, as has been brought forward by Arthur C. Miller to the attention of the beekeeping world. He says, reduce the entrance to about one inch and then give the colony three good puffs of smoke and close the hive for fifteen or twenty seconds, then open and run in the queen and give another good puff, and close for about ten minutes, when it can be opened just a little.

Now, there is nothing that will frighten bees quicker than smoke. Their first impulse is to fill themselves with honey and rush out of the hive; but get out they can not, for the entrance is closed so their fright is increased to the highest pitch. After ten minutes the hive is to be opened just a little. If we place our ear to the side of the hive we can hear the wild tumult and panic within while fright reigns supreme. The cappings of cells of honey are torn so that the bees may in the greatest haste fill themselves with honey while their love for their brood and tender affection for their queen is apparently obliterated for the time being. It is doubtful if one bee in ten thousand at this time would recognize its own or any other queen. After a time the smoke dies away, and fear gives way to a feeling of good will and gentleness. There is probably not an angry bee in the hive. Every bee is filled with honey, and any and every bee is glad to give it to any queen it may meet on the combs without asking questions; and it is doubtful if there is a bee in the hive that could tell its own from any other fertile queen, in consequence of the odor of smoke that has filled the hive and given every bee within it a characteristic odor. Mr. Miller thinks the odor has nothing to do with it, but rather the fright and tumult caused by the smoke, and he may be right. If so it

Iowa and Wisconsin beekeepers at McGregor, Ia., May 19.

would show that the success of this method that has recently become so popular depends almost entirely upon exciting the emotion of fear or fright in the bees.

There is really not much that is new in this method, at least in the principle, although there may be in the method of manipulation, Mr. Doolittle having described it very fully in his book on queen-rearing, page 112, first edition, some twenty-five years ago. He says, " Having found the queen, she is killed or otherwise taken care of, and the hive closed. I next blow in at the entrance enough smoke to alarm the whole colony, pounding with my fist on the top of the hive until I hear a loud roaring inside, which shows that the bees are filling themselves with honey. I now let the queen that I have in the cage run in at the entrance, smoking her as she goes in, while I still keep pounding on the hive. In doing this, nothing but wood smoke should be used."

Mr. Doolittle uses smoke and pounding to frighten the bees, while Mr. Miller uses smoke alone, although he says he can do it by pounding alone. The principle in both appears to be to frighten the bees. Mr. Doolittle seems to think success depends much on the bees filling themselves with honey, and the odor of the smoke, while Mr. Miller says the odor has nothing to do with it, as he can secure the same results by pounding on the hive to frighten the bees without the use of any smoke.

Middlebury, Vt

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IOWA AND WISCONSIN BEEMEN AT McGREGOR

BY FRANK C. PELLETT

The joint meeting of Iowa and Wisconsin beekeepers, which was the first of eight meetings announced for the summer by the Iowa beekeepers' association, was an unqualified success. The meeting was held on May 19 at the Heights overlooking the Mississippi River, one of the most beautiful spots in the middle West. From the top of the bluff where the picnic dinner was spread one could see up and down the river for many miles and get a splendid view of the Wisconsin shore across the stream. Aside from a wreck on the Milwaukee railroad which prevented some from reaching the place, every thing was ideal. The day was fine, and abundant shade made an outdoor meeting very enjoyable. Many came from considerable distances to listen to Hon. N.

E. France, of Wisconsin, who made a very pleasing address. Mr. Holmberg, the State Inspector of Minnesota, was also present and followed Mr. France with a short talk. Brood diseases was the principal topic discussed, as foul brood is seriously threatening the beemen of eastern Iowa at present. However, in the discussions that followed many subjects of interest were touched upon; and, taken all together, the meeting was very pleasant indeed. It was decided to hold a similar meeting in May next year, and to invite the beekeepers of Iowa, Minnesota, Wisconsin, and Illinois.

The photo of the gathering here presented was taken by Mr. John G. Wagner, a beekeeper of Elkader, Iowa, who is also a photographer.

Atlantic, Iowa.

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A YEAR'S EXPERIENCE WITH BRANDED QUEENS

BY H. BARTLETT MILLER

Referring to the editorial, page 203, of the April 1st issue for last year, commenting on my article in the same issue on branding queens, I wish to contest some of the statements made. As to "ordinary medium-strength colonies" of the various races, we down in this nethermost land of earth have such a lovely and equable climate that our job is to keep the colonies down to a reasonable store-consuming strength during the off season. English apiarists, one and all, tell me that our winter strength is nearly if not quite equal to the harvest strength in England, and I suppose that comparison would apply to most of the northern States, leaving out the experts whose fame is proof of their ability to keep their colonies strong beyond the normal. It is quite the common thing in this Waikato district for the colonies to have on July 4 (which is 14 days prior to our mid-winter, brood in from five to seven frames, while this brood-rearing fairly started for the season in July is to provide gatherers for a flow that seldom or never comes until November 15, and sometimes does not arrive until well on in January. Now imagine the strength these colonies, if well cared for (as the commercial beekeeper is forced to care for them), reach by the time one goes through the spring examination, say late in September. Sure I can open a hive without rousing the whole neighborhood with the roar; but think of 8 to 11 frames of brood at the spring examination with "nothing doing" in the fields (unless willow is in bloom, which is only for about ten days), and those queens to be found so as to relieve pressure of work when dividing or cell-destruction arrives in October! What is true here is true, I take it, of most of the southern States. As the North judges them, medium colonies are only weaklings in the South, or else I have been misreading all my bee-journals, and I take them all, for these seven years past.

Then, again, when a swarm issues with a superseding virgin, as sometimes they do, even with such extra-clever persons as your humble scribe, it is almost a moral certainty that I shall find the dead queen by the brand, somewhere in front of the hive, and discover what hive they come from without tearing down heavy half-filled supers on other hives. Without the brand I might never catch sight of her. Several times has the branding saved my pulling apart piles of supers to stop the almost inevitable afterswarming.

Then as to the time and skill it takes to do the branding. It is not the branding, it is the catching of the "varmint," that uses up the time; but the satisfaction of knowing that, except during supersedure, they are not likely to decamp with a swarm without your finding them before the last trial, is so great a relief that I clip all mine for that sole purpose, while the branding is advisable if only to be further relieved by the thought that she is there when I want her. Mark you, I want her at every spring overhaul, and sometimes during the honey season. It depends on whether I divide or not, or supersede her or not; and, indeed, a lot of other knots that the branding completely untangles. Now, however, can you look me in the face and say, "It is about an even stand off, with the advantage in favor of no branding"? because the time consumed in branding and finding the queen would equal the time consumed in finding the queen without the brand. Just find her. That is what the books, one and all, advise; but the books forget to add, "Find her every time you want her."

Then the last cruel aspersion, that the color might wear off a good layer! Why, the very fact that it does not do so nearly gave me a fit. One queen, branded on both antennæ, was still alive in October, and doing as well as any in the apiary, although marked as so branded over 9 months before.

My two No. 6 queens also are both alive, and the brands intact. I cannot say that any queen superseded had been so superseded through the branding. Most of the new queens requiring clipping replaced old queens, and in any case must have been superseded months after the spring branding, or I should have noticed the fact by the diminished honey-crop resulting from the swarming that such supersedure, if unnoticed, would have resulted in.

Now for the final knock-out. Just you remember that all my newly introduced queens are branded prior to introduction, so that the time spent last spring in sifting queens will never occur again if I know any thing about it. Only upon the rare occasion of being unable to find a superseded queen at the spring overhaul—and not always in such a case—will it be necessary to sift to find the victim. My queens are of very dark leather color, and this spring it was an immense relief to find so many without looking for them. I have not lost one queen except one branded on one antenna only, last year, and it is just a gamble whether she died from that, seeing another branded on both antennæ is yet alive and hearty.

Kihi Kihi, N. Z.

MENDELISM

BY G. W. BULLAMORE, F. R. M. S.

We speak of hybrids as though they were half way between the two parents; but in practice we know that some characteristics are passed on entire by one or the other of the parents. The eye color of children is an example which will occur to many people, and it is with inheritance of this class that Mendelism deals.

Mendel's experiments were carried out with varieties of peas differing in the arrangement of the flowers, the form and color of the pod, the form and color of the ripe seed, etc. He reduced his facts to formulæ, and published his essay in 1865. It attracted but little attention at the time; yet its rediscovery at the end of the last century has given an impetus to biological research; and Mendel's law has been found to hold for the inheritance of many characteristics in plants and animals.

In his investigation of heredity Mendel concentrated his attention on single pairs of characters. He found that when a tall variety of pea was crossed with a dwarf variety the first generation of crosses were all tall. But the second generation, which was the result of the inbreeding of the tall hybrids, gave plants with a proportion of three tall to one dwarf. The dwarfs, when interbred, gave dwarfs, while the talls were found to be of two kinds. One in three of them could be relied upon to breed true; the other two acted like the tall plants of the first generation, and resulted in offspring in the proportion of one dwarf and one tall plant exhibiting stability to two tall unstable plants. Mendel describes the tall character as *dominant* and the dwarf character as *recessive.* Using the letter A to denote this dominant, and a to represent this recessive, we can express the constitution of all the offspring after the first generation as $A+2Aa+a$. Another pair of characters, B and b, will give the term $B+2Bb+b$, while a third pair, C and c, gives $C+2Cc+c$. If the three pairs of terms are present in the original plants, the plants of the first generation will *exhibit* the dominant characters ABC; but in the next generation we shall get the three terms combined to give $\mathrm{ABC+ABc+AbC+Abc+aBC+aBc+abC+abc+2ABCc+2AbCc+2aBCc+2abCc+2ABbC+2ABbc+2aBbc+2aBbC+2AaBC+2AaBc+2AabC+2Aabc+4ABbCc+4aBbCc+4AaBCc+4AabCc+4AaBbC+4AaBbc+8AaBbCc}$.

The individual represented by three letters will breed true, while those represented by four or more letters will give fresh combinations in the next generation. We see, therefore, that where there are but three pairs of unit characters we get 27 combinations in a series of 60 individuals, and that eight of the combinations, each represented by one individual, may become permanent types. The remaining 56 individuals of the series are unstable.

There is another method by which the probable results of a cross may be calculated. If n equals the number of pairs characters (units) under consideration, then 3 to the nth power will give the number of terms in the series; 4 to the nth will give the number of units in the series, while 2 to the nth will give the number of individuals, all different, whose characters will remain fixed.

If we take the letters ABC, abc, in the above formula to represent the color, nectar-gathering qualities, and temper of two races of bees, we see that the odds are against the reappearance of the original races, although something resembling them may sometimes crop up. It should be borne in mind that such a character as special ability at the gathering of nectar must depend on many points which may each be represented by one or more units in the germ. Tongue, honey-sac, wings, antennæ, the various ganglia which govern the use of these parts of the anatomy, as well as longevity, may all play a part in pushing a stock to the front. Color may be due to factors which control the disposal of waste and the hardening of the chitin. Twelve pairs of characters will give over 4000 permanent combinations.

An interesting example of the class of work that is now being done is that on the combs of fowls. Both the pea-comb and the rose-comb are found to be dominant to the single comb. But when the pea-comb is crossed with the rose-comb we get in the first generation a type of comb known as the "walnut" comb. In the next generation we get, in a series of sixteen individuals, 9 walnuts, 3 rose-combs, 3 pea-combs, and one single comb. To explain this result, it is assumed that each dominant carries a recessive, so that the walnuts of the first generation actually consist of AaBb individuals. When these are inbred we get offspring in accordance with the formula AB+Ab+aB+ab+2AaB+2ABb + 2Aab +2aBb+4AaBb. Then the nine individuals containing the dominants AB will have walnut combs; the three containing dominant A will have rose-combs, and the three containing dominant B will be pea-combed. The remaining chick containing the recessives a b will be single-combed.

There can be no doubt that heredity in bees is also subject to fixed laws; but up to the present very little is known as to probable results, in mathematical terms, of any cross. Perhaps some of the breeders who have had great experience in hybridization may be able to enlighten us.

Atbury, Herts, England.

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A PLAN FOR SECURING THE GREATEST AMOUNT OF SURPLUS DURING A SHORT FLOW

BY J. H. FISBECK

When the colony becomes strong, put on supers of empty combs. When the queen gets well started laying in these supers, and new honey starts coming in, put this super or supers with queen on a bottom-board on the same stand, adding as many supers of empty combs to give the queen and bees an abundance of room, letting her go wherever she pleases. The old brood-chamber with frames of brood and honey is placed over a colony that was used to furnish mature brood for those colonies worked for surplus. Two or three sets of brood can be given to a weak colony. When the honey-flow is over, or nearly so, place these old brood-chambers (those that were removed previous to the honey-flow) back on their original stands, putting the queen below an excluder until the brood above is hatched, and honey ripened, when it can be extracted.

The advantages of this plan are:

1. Colonies to be worked for surplus are made powerful by adding frames of sealed brood early enough before the flow to supply bees of the proper age for gathering when the white honey begins to come in.

2. Colonies are prevented from swarming early in the season by putting on a super of empty combs, and, later, removing all brood except that which is in the upper super, at the same time giving all the empty combs you wish. Surplus nurse-bees are removed this way.

3. Bees devote all their energy to gathering honey, having very little brood to take care of.

4. All the honey is new in the *present* brood-chamber and supers, and *all* is extracted after the flow.

5. These weak colonies become strong enough for surplus and cell-building, etc.

6. Good for locations where there is not a long heavy flow and you want every drop of new honey that comes in, for surplus.

St. Louis, Mo.

Dr. Miller replies:

The first factor in the case, although not first named, is that you take brood from one set of colonies to give another set. Not only do very strong colonies yield more honey than weak ones, but they yield more *proportionally* to numbers. So your management will very greatly increase the output of the strengthened colonies. Whether it will increase the total output of the entire apiary depends upon circumstances. If it be possible, by equalizing, to bring all colonies up to strong working condition, then more honey will be obtained from the entire apiary, even though the average be less per colony than by the former plan. If all can not be brought up to strong working condition, then your plan will increase the total harvest. Generally it is possible, in a well-managed apiary, to make all colonies strong enough for the harvest, whether that be long or short, so that experienced beekeepers would generally work your plan at a loss. In some cases a compromise would be advisable, bringing the largest number possible to full strength, and weakening a few by your plan.

The second factor in the case (and the two factors are independent of each other) is the taking away brood. Having no babies to putter with, the bees devote their whole energies to gathering honey. Of course, they ought to gather more than bees with divided interests. It may be worth while to do a little figuring as to what the gain really is.

The time fixed for taking away the brood is not very definite. It is " when the queen gets well started in these empty supers, and new honey starts coming in." That may be in a week or less. Let us say it is three days after the queen begins laying in empty supers. At this time about 28 per cent of the brood in the brood-chamber will be unsealed, becoming less each day, until at the end of five days it is all sealed. By taking away this brood we save feeding this more than a fourth of the brood for 2½ days (averaging from five days to nothing).

Now let us see about the brood left. At the time of removal of old brood-combs the queen will have been laying three days in the super, and in five days more she will be in full swing, and there will be as much unsealed brood to be fed as there was at the beginning. Almost surely there will be more. For the queen, previously restricted to the brood-nest, is now given unlimited territory. Just as full a force of nurses as before will be needed to feed the babies, and as no new nurses are being born, none of the force at work will be freed to go to the field. So from the day of the removal of that old brood we may count on a diminution of fielders by the amount of the daily deaths from old age. If the old brood had been left, even though the flow should be so short that not a bee from that brood should take part in the harvest, yet each bee born would be ready to take up the work of nursing, thus releasing an older sister to go afield.

So it begins to seem that we have lost enough in our field-force to balance the gain of 2½ days of feeding. Indeed, the loss may considerably overbalance the gain. The trouble is that, when we took away that 28 per cent of the brood that needed feeding, we took away with it the 72 per cent of sealed brood, and the fallacy is in thinking that that sealed brood could make no difference in the field-force in a short flow, while in fact, as already said, each bee that emerges from its cell allows another to become a fielder. If the queen had been stopped entirely from laying, the case would be different. But that's another story; and although it isn't worth while to go into it here, it may be worth while to say in passing that it doesn't generally pan out all right.

There is still left the advantage that taking away the brood stops all notion of swarming. That may again make the balance come out on the right side. But we may have that advantage almost if not quite as surely without taking away that sealed brood. Simply put it above an excluder, leaving the queen below, which is neither more nor less than the Demaree plan of preventing swarming.

Marengo, Ill. C. C. MILLER.

A LITTLE IMPROVEMENT IN SUPERS

Using a Super Slightly Wider to Allow a Bee-space on Each Side

BY E. S. MILES

Some fifteen or twenty years ago the elder Mr. Pettit, of Ontario, Can., who was one of the wideawake, practical, observant beekeepers of those days, had a special arrangement to allow the bees to go up the outside of the brood-nest and into the supers at each side by means of extra bee-space left on each side of the hive and supers. Without going into the merits of such an arrangement, which, of course, was discussed pro and con at the time, I wish to say that it led me to observe that, on the side of the super where the follower was, and where a lot of bees congregated, owing to the extra space there, the sections would be built out and finished a little quicker than on the side where the comb had to be drawn out next to the side of the super, and only one layer of bees could congregate there. This was with a solid board follower, while Mr. Pettit, if I remember, used a perforated or slatted follower, which allowed the bees free passage from the clustering space to the comb. I noticed this, and thought an improvement on the common super easily possible for several years before I did any thing. But finally, needing some more supers a few years ago, I ordered 100 made ⅝ inch wider than regular, and nailed five little blocks on the inside, on one side, these blocks being ½ x 4 x ½ or ¾. I nailed a slatted separator on to these blocks, spacing the blocks so they would come where the rows of sections join in the super, thus making a ½-inch bee-space between this separator and the sides of the super; and after putting in the sections I used a follower bored full of 5-16-inch holes, except ½ inch at each end, and the same at the three places where the follower presses against the sections.

This arrangement allows a layer of bees at each side of the super, and the outside sections are worked better than the old style, and are filled plumper, there being little if any difference in weight of outside and center sections. The best building, however, seems to be on the side where the slatted separator is, so I am rigging a bunch now with two slatted separators nailed together for a follower in place of a board. I shall use 100 with the board, and 130 with separate follower, and so find which is best.

I find no trouble in using this super on the regular eight-frame hive. It projects over the brood-chamber about ¼ inch on each side, which does no harm; and as I use the common flat cover, that does not bother either.

This is a little matter that may seem trivial; but with the eight-frame hive it will lead to one-third of our sections being better weight than with the common super, and more apt to be sealed, so it really is a thing worth having. It costs so little to try it that any one can do so. Just have the regular super made ⅝ wider, and rig up as directed above.

Dunlap, Iowa.

A HYDROMETER FOR DETERMINING THE PROPER DENSITY OF EXTRACTED HONEY AND SYRUP

BY A. N. CLARK

A Canadian beekeeper tells me that he had lost some extracted honey from souring by following the advice of GLEANINGS, the editor and other writers having stated that honey weighing 12 pounds per gallon is heavy enough to keep. It is true that such statements have been made, and it is very generally agreed that any honey that weighs 12 pounds to the United States liquid gallon is thick enough. But it just happened that many Canadians and Englishmen are not aware that the States use a different gallon from what the former do. A Canadian (imperial) gallon of honey should weigh about 14½ pounds. A United States liquid gallon contains 231 cubic inches while an imperial gallon contains 277.41 cubic inches. As English-speaking nations are over-blessed with a variety of measures, one needs to bear in mind that a gallon or quart may mean either United States liquid, United States dry, or imperial, depending on where it is used and what it is used for. Official inspectors of weights and measures tell us they have found storekeepers who bought fruit and vegetables from farmers by the " dry " quart and sold the same to consumers by the " liquid " quart, resulting in the confiscation of their liquid measure by the officials.

Beekeepers who desire to determine the density of extracted honey or of dilute honey, or syrups used for feeding, would make fewer mistakes if they used a good Brix hydrometer. I once used a hydrometer with a Beaume scale for testing extracted honey and feeding-syrups; but the Brix scale is preferable because the number of degrees Brix is equal to the per cent of sugar in a pure-sugar solution, or the number of pounds of sugar in 100 pounds of syrup. So if one wants a one-to-ten feeding syrup he stirs in sugar until the hydrometer reads 10 degrees at the surface of the syrup, and does not need to measure or weigh either the sugar or the water. If it is a syrup for winter feed he adds sugar to the hot water until the hydrometer reads about 65 to 66 degrees in the *hot* syrup, which is equivalent to two pounds of granulated sugar plus one pound of water; that is, a syrup containing two pounds of sugar and one of water will read 67 Brix at a temperature of 68 F. If a syrup or honey is tested with any hydrometer at a temperature much higher or lower than that at which the hydrometer was standardized, due allowance must be made for difference in temperature, as all liquids are lighter when hot than when cold.

Extracted honey at a temperature of 68 F. should have a density of about 85 Brix, equal to a specific gravity of 1.45; weighs a little better than 12 pounds to the United States liquid gallon, and contains about 15 per cent of water.

Of course the degree Brix does not indicate the per cent of sucrose when the hydrometer is used in honey, but it comes very close to indicating the per cent of solids in the honey; so when we subtract the degrees Brix from 100 we obtain quite closely the per cent of water in the honey.

It is not practicable by any method to test the density of *thick* syrups or honey at a temperature below 50 degrees F. A temperature of 60 to 100 F. is much to be preferred, as the viscosity is less.

For those who might wish to make use of some form of hydrometer I would recommend a set consisting of three hydrometers —A, 0—30; B, 30—60; C, 60—90 Brix, divided to ½ degrees, and standardized at 68 Fahrenheit. A and B would be used for thin syrups for feeding, for insecticides, as lime-sulphur solutions, for water-glass solution used with eggs, and for brines and other solutions heavier than water. C would be used for testing density of extracted honey, and syrups for winter feed. Such a set can be procured for about $4.00 from Eimer & Amend, New York, or E. H. Sargent & Co., 125 Lake St., Chicago; or The Denver Fire Clay Co., Denver, Colo.

Lansing, Mich.

ORGANIZATION IN THE MARKETING OF HONEY

BY O. B. METCALFE

In the March issue of *The Western Honey Bee* I think the editor has hit it about right where he advises local organization as the first step to State-wide agreement. It is certainly the safer plan. An experiment on the part of the whole State might tie up a crop of honey more or less, and this would throw two crops on the market the following year at a price likely to be worse than ever. Five or six men, or more, as he suggests, may get together and try the thing pretty well. I do not believe that the buyers are as well organized as most beekeepers think. If they had such a snap I doubt whether they could keep it secret enough so that others would not rush in to share it with them. I suspect that competition is pretty keen between them. If it is not, you can bet that they are buying your honey on a pretty close margin. This is what the small organization may find out.

I hear some one say that they have no chance to get more for their honey when all the others sell at the same old price. That depends on just one thing. If the buyer has been fattening on an unreasonable profit, they can hunt the market and get more for their honey. If not, they may fail. If they succeed it will be an easy matter for them to induce the others to join them.

It has been my observation that one good live business-like producer who hunts the market and gets more for his produce does more to give the little man the " better-price bug " than all the arguments you can put before him. Get the best of the other fellow as to returns, and he is a believer. You don't have to argue it with him. In the mean time let every beekeeper hunt his own market with all his might.

I have wondered if it would be possible, and if it would not help the price of honey, if the bee journals would print all " honey wanted " advertisements for just the cost of printing, or even free.

One thing that organization for the purpose of raising the price of honey should bear in mind is that honey is not one of the necessities of life. If some master broker could somehow get a corner on all the honey in the United States, and then proceed to jump the price a few cents too high, he would simply keep nearly all his honey. That is all that would happen to him.

We must also bear in mind the prices of competitive products, and that the main consumer of ordinary extracted honey, at least, can sweeten his meal very satisfactorily with cane syrup. It is not a question of the relative food values of butter and honey, as some writer once talked about. It is a question of the price of good wholesome cane syrup, and how much better the consumer likes honey. If he likes it two cents a pound better, charge him two cents more for it, but stop at that

For all I say here, I am friendly to any sound scheme for raising the price of honey. I merely wish to warn the organizers not to overlook their limitations. I once tried to make a talk something like this one at a beekeepers' association meeting in Los Angeles, and I think they thought I was making a selfish talk in favor of the buyer. As a matter of fact, I have not even tried to buy a single pound of honey on speculation for the last four years, for the reason that my buying and selling figures were always so close together that it never proved worth my while.

QUALITY OF QUEENS FROM SUPERSEDURE CELLS.

Say! " I kinder like " the editor of *The Wstern Honey Bee*. But on page three of his March issue he says that supersedure cells are inferior cells. I thought they were the very best.

DO BEES ANTICIPATE THE END OF A FLOW?

Dr. Miller, in Stray Straws, March 1, quotes Dr. A. Ludden as having explained the crossness of his bees with a theory that the bees anticipated a stoppage in the honey-flow. Perhaps Dr. Ludden is right, for such is the case here in the Mesilla Valley of New Mexico. Even as long as two or three days before the end of a honey-flow, and while the scale hive may still be showing a good gain, the bees are often so cross that one needs a veil to go among the hives.

I wonder, though, if Dr. Ludden has a locality similar to mine—one where the honey-producing plants are cut down in full bloom. I had it figured that hives No. 1, 20, 60, 80, and so on, had been working on the fields, we will say, of Mr. Davidson and Phillips, and that their fields, having stopped yielding in a single day, these bees were quite naturally on the war-path. Still other colonies in the same yard had been working mostly on other fields in different directions. With his theory in mind I had supposed that where a honey-plant was allowed to bloom itself out, and therefore shut off the honey-flow gradually, there would be none of that vicious fighting.

SOME NEW-OLD PLANS THAT ARE GIVING SUCCESS

BY JOHN S. REESE

For the benefit of the ever increasing number of beginners and new recruits in the ranks of the army of beekeepers, we will mention a few of the new-old things that are being used successfully by the veterans and large producers of honey.

Painting queens is one of the most helpful of the new-old things we have adopted very recently. Having painted more than one hundred black and yellow queens the past season, we failed to find a single objection, in any way, and we tried it on virgins just hatched, and, in fact, every way we could think of. It is simple and easy to do, and enables one to find his queens quickly every time.

Introducing queens direct by the smoke method, with a few tobacco crumbs added to the smoker, as described many years ago by Alley, we have practiced with success, but now prefer the Miller plan of stopping up the entrance for a short while. The tobacco or a few drops of carbolic acid may be added to the smoker, if you like. We have never found it necessary to plug up the entrance at all if the introducing is done late in the evening, when the bees have quit flying for the day.

Greasy, discarded waste for your smoker may be had at any machine-shop or around where engines are used. You will want nothing else in the fuel line. Use largest size of smoker always.

Now how about those carbolized cloths? If you have never tried them, do not wait any longer. Get busy.

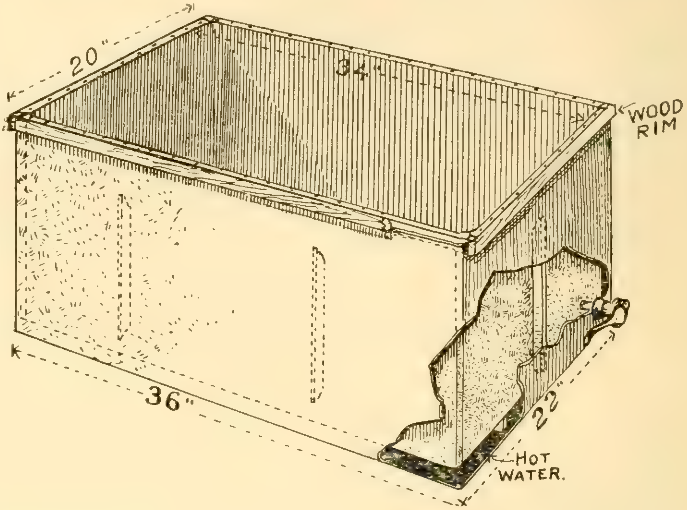
The steam honey-knife has come to stay, and works like a charm. Begin with a good one, and save time and money.

The bee-escape has undergone improvements until the Porter double-ender seems to have reached perfection, and is an indispensable little implement. The first style published was invented by a beekeeper (the writer), who just had to have some way of getting the bees away from the honey automatically, and he thought of the wire-cloth fly-trap with the small hole in the apex of the cone, and applied it to the bee-escape. It works well yet; but use the double-ender Porter and be happy.

Now, Mr. Bee Ginner, have your queens' wings clipped; and when the swarm comes out, catch the queen on the ground, put a glass tumbler over her, as my wife does, if you like; move the old hive to a new location, and hive the returning swarm on the old stand, then read A B C and X Y Z again, also GLEANINGS.

Bee-tents will be fully tried out this season, especially the style that fits snugly over the top of the hive; also the bunch of horsehair or cow's tail placed at the entrance to stop or prevent robbing. The left wing tip of the turkey to brush off the bees from extracting frames, and may be other things, would be all right.

Well, the capping-melter has also come to stay; and of the many good styles that are offered, here is another, not new, with plans that may be varied as to size, etc. The first box of this kind we saw at Muth's place in Cincinnati some years ago, which he used for rendering old combs and dirty wax through a Hatch press. As the plans indicate, the inside of this double box is 20 inches wide, 16 tall, and 36 long. It will hold about 47 gallons. This size can be made from two sheets of galvanized iron, 36 inches wide by 7 or 8 feet long, and two sheets costing about two dollars, and a few hours' labor by a tinner who has a folding or bending machine. A honey-gate put through one end at the bottom will let out the honey as it drains from the cappings, or the warm wax and honey when the water is heated by the fire under the box. At one end near the top should be an inlet for the water, where, also, may be arranged for the connection of the steam honey-knife tube; but this should not be the only means for steam for the knife as uncapping may be necessary when you would not want to heat up the double box. Any arrangement put in the box for screening or allowing the honey to drip from the caps should be movable, so they will not be in the way when rendering old combs and wax. This box is ideal for rendering wax, as the fire does not come in direct contact with the contents of the inner box, therefore will not boil over, which is worth all the money the box cost. A wooden frame may be put around the top just right to hang L. frames crosswise.



Suppose we call this the Reese capping-melter and wax-rendering-box.

Winchester, Ky.

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A WORD ABOUT IOWA LOCATIONS

BY FRANK C. PELLETT

Unfortunately, too many men use bad judgment in starting in honey production, and locate in territory already fully occupied. This cannot but result disastrously for both the man already on the ground and the new man as well. Here in Iowa there is plenty of unoccupied territory without infringing on the rights of those already established. In many counties there is not a single large apiary. In view of these facts it seems strange that there is a tendency to crowd in on some one else. One instance recently came to my attention of a man starting within less than a mile of a man who is conducting the business on a rather extensive and very successful scale. Those who contemplate taking up honey production should by all means find an unoccupied location or stay out of the business. In the vicinity of several of our larger cities there are already plenty of bees to gather available stores. In the vicinity of others with equally good markets no beekeepers are located. It is this senseless and inexcusable crowding that makes so many afraid of any systematic attempt to develop the business along the lines by which other industries have been made prosperous. If those who contemplate taking up the business in this State will communicate with me I will endeavor to assist them in finding a location that will not interfere with either forage or local markets of others who have prior rights. While it is desirable that unoccupied territory be taken up it is surely not desirable that localities already occupied be overstocked.

AN EPIDEMIC OF EUROPEAN FOUL BROOD.

Foul brood is rapidly placing the business of honey production in the hands of specialists. All over the State the inspectors are finding those who formerly kept a few bees in possession of a lot of empty hives. Just now reports of a very malignant type of European foul brood are coming in from all parts of the State. Beekeepers should be on the watch to check it at its very first appearance. It is appearing in many new localties, and may be expected at any point. In some localities where there were prosperous apiaries a year ago the owners find themselves almost entirely out of business this year. It is very apparent that those who will not take up beekeeping systematically will not last long under present conditions.

Atlantic, Iowa.

Heads of Grain from Different Fields

THE BACKLOT BUZZER

There's nothing like requeening at the right time; but why the samhill is it carried out in high society? The man who still thinks bees don't do any good to his fruit-trees is the man who doesn't have his home pointed out when the rubber-neck wagon man goes by.

Conditions Under which Red Clover will Yield Honey for the Common Honey Bees

After reading the April 1st issue of GLEANINGS I arrived at the conclusion that some of the articles on queen-rearing smacked quite strongly of free advertising. When any one of them will go so far as to say that his queens are descendants from *one* whose bees stored surplus honey from red clover when all the rest in his apiary were storing dark honey-dew, you can size up such men as *frosts*. This reminds me of an article that appeared in your columns years ago in which a certain queen-breeder claimed that *his* were descendants from one whose bees stored surplus when all the rest in his apiary were starving. I wrote an article in reply to it, and offered $100 to any man who would put a swarm of bees in my apiary that would store surplus when *my* bees were starving; but the $100 was never called for; and I will renew that as a *standing* offer to any man who will bring or send me a colony of bees that will do that, or store surplus honey from red clover when my bees are storing dark honey-dew. Yes, I will make it still stronger—give $100 to any man who will bring or send me a colony of bees that will store surplus red-clover honey at all, or who will send me a queen that will produce such bees. Here is a chance for some of those queen-breeders to get busy and earn easy money. If I remember correctly, some years ago you paid $200 for a queen, and I bought of you two or three of her daughters; and I will say that they produced *good* bees, but they never stored any surplus red-clover honey, neither did any other man's bees ever do that. I have bees that work somewhat on red clover; but as to surplus honey, *never*.

After reading the articles above referred to I wrote one of these gentlemen, inclosing a stamp for reply, and asked him to send me the address of one or two of the breeders from whom he received his best stock. Did he do it? No, indeed. He wrote me a letter stating that that would be indiscreet, and knocking the *other* fellow's business, but very kindly inclosed *his* queen price list and circular in which he claims that no queen is allowed in his apiary whose bees do not clean up foul brood immediately, and that the infection is plentiful in his locality. He further says, "Our main fall flow is mammoth clover, from which we get a great many pounds of honey annually," but note he does not say mammoth *red* clover, though that is the inference that he intends to cast before the unsuspecting and amateur beekeepers. He *might* say that *sweet* clover was *mammoth* clover because it grows much taller than red clover, and all beekeepers know that all bees work well on it, and store surplus honey, and also that its season is the same as he refers to, and I wish to state that, in my opinion, all such statements as referred to are misleading, at least, if not untrue, and they are made for this purpose just as much as the ones are to which you often refer with reference to the so-called goldens; and if *this* man's goldens are so far superior to all others as per his article, why does he quote prices on goldens, three-band, and leather-colored all the same price? He can, perhaps, tell us.

Union Center, Wis., April 22. ELIAS FOX.

[We cannot believe that there was any deliberate attempt by any of the writers in the April 1st issue to secure free advertising, for several voluntarily suggested that we substitute a *nom de plume* for their names if we thought best.

Mr. Fox is evidently basing his statements on what takes place in his locality. The question of whether red clover yields honey or not depends very largely on the season and the locality. In some places the soil is "clover-sick"—that is, lacking in lime. In other places it grows luxuriantly, especially some seasons. A heavy luxuriant growth of common or peavine red clover will not yield honey as well as that grown on a soil or in a season that is too dry to grow more. The reason of this is plain: Bountiful and frequent rains in early spring will make red clover have longer corolla tubes than in a spring when the weather has been dry. In a dry season on a poor soil some bees can reach the nectar from red clover because the tubes are shorter. We have verified this in our own locality time and time again, and any one can do the same if he has the proper soil conditions and a diversity of seasons.

There is one more factor—a fact which we have proved out beyond any question, that different strains of bees have different tongue-lengths; but the longest tongue-length of any bees of any strain except bumblebees will not reach the nectar in the long corolla tubes of red clover; in fact, a great deal of the time even bumblebees can't reach it. We proved that out to our own satisfaction some years ago. But they reach enough of it to cause a fair seeding.

There is another interesting fact—namely, that the nectar rises higher in the corolla tubes some seasons than others. This occurs in a year when every thing seems to yield bountifully of honey.

When we happen to have the right combination of seasons, soil, humidity, and bees, we can get some red-clover honey—yes, even a surplus; but it is seldom that the entire favorable combination is present.

Taking these facts into consideration, it is easy to see why there should be a difference in reports regarding the fact whether red clover yields honey or not.

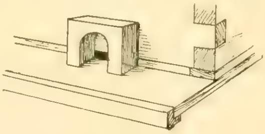
Mr. Fox is perfectly safe in making his offer of $100, as no bees in his locality could probably win the prize; but this is not saying that the conditions may not be right elsewhere for an occasional surplus from red clover. Practically all strains of bees can gather honey from red clover when the season conditions and soil are right. There are other seasons and soils when no bees of the *Apis mellifica* can get the nectar from it.—Ed.]

Introducing by the Smoke Plan; a Block to Facilitate Running the Queen into the Entrance

I believe I can go Arthur C. Miller one better on the direct introduction of queens. I have practiced for several years the running-in of queens at the entrance with smoke, but always with more or less bother, and every now and then I had an escaped queen in the air. After reading Mr. Miller's article in which he advised contracting the entrance to avoid the escape of queens, I tried the method, but found the bulk of my old troubles still remained.

I usually introduce direct from a nursery cage. My practice was to watch the cage until the queen started for the exit, then place the cage quickly at the entrance and follow the queen up with smoke, provided she went in. But not infrequently she would change her mind, and the hive entrance prove no temptation, and then the watching process would have to be repeated, and possibly repeated several times, and this just at a time when not a minute could well be spared.

I was attempting to introduce a fickle virgin one day that had baffled several attempts to get her from the cage. I finally plugged up the cage and started for the shop, and cut out the little U-shaped block shown herewith. I again gave the queenless colony a good smoking, placed the U-shaped block at one end of the entrance and a retaining piece of wood across the other end. I placed the opening of the cage against the opening of the block; picked up my smoker, and a few gentle puffs of smoke put the virgin inside the hive. The U-shaped block forms a passageway between the cage exit and the hive entrance. I have introduced several dozen queens with it since, and they all went, and went quick, and stayed inside the hive.



Prophetstown, Ill., Aug. 25. Henry Stewart.

[The scheme here shown, of a little device that adapts the mouth of the queen-cage to the entrance of the hive, is all right. We use the Dr. C. C. Miller introducing-cage exclusively for the purpose. It is oblong and flat, so that it readily adapts itself to the entrance of the hive without an adapter.—Ed.]

The Florida Dragon-fly Not Troublesome in all Localities

On page 444, June 15, the editor speaks of the dragon-fly. They are very bad on the east coast, also in all sections where there is heavy timber. We are not bothered here at all. A couple of years ago I had one apiary in thick woods by a marsh, and there they bothered considerably; but I have not had trouble since moving them out.

The last half of saw palmetto was cut clear off, as it blighted. The first part yielded well; the same with the orange; gallberry was all blighted.

The mangrove is partly blighted with a good bloom, but we shall not get much honey from it unless it rains. It has to have lots of rain to yield well.

Palmetto, Fla., June 24. C. H. Clute.

[Palmetto is just across the river from Bradentown. Our neighbor Rood, just opposite A. I. Root's residence, says he has had no trouble from dragon-flies to speak of. We are quite ready to believe that it is not a pest in and about Palmetto, as there is not much timber of any sort in and around the town. There is a considerable growth of low timber in and about Pompano. It appears these flies get in their destructive work during the month of April. There is a large amount of timber, especially of tupelo, in our location near the Apalachicola River—in fact, all up and down the river. The dragon-flies do much damage in queen-rearing operations in that part of Florida during May and June.—Ed.]

Shipping Comb Honey by Parcel Post

My father lives at Glen Rose, Ohio, about 15 miles from Cincinnati, while my father-in-law lives at Newport, Ky., across the Ohio River from Cincinnati. Thinking to send them some honey I prepared two packages, each consisting of 8 one-pound sections packed in a corrugated three-pound comb-foundation package. I first wrapped the sections in waxed paper, then laid them two deep on the bottom in the middle, and closed the cover, almost, then wadded newspaper along the sides tightly in order to prevent side play. I finally wrapped the package in wrapping paper. Father replied that his package arrived with the loss of about a tablespoonful of honey from one of the sections, this being within the waxed paper. My father-in-law replied that his honey arrived in perfect condition.

Thinking to test further the parcel post I prepared another package, consisting of one of your three-pound foundation boxes (corrugated paper), containing one shallow Hoffman frame of honey, wrapped in waxed paper, tightly held in place with wadded newspaper. The frame was a little too long, so I cut off the ends. This package I sent to a relative near Hutchinson, Kas. The package was received in first-class condition also, no loss of honey.

My conclusion has been that, if sufficient care is taken in packing, particularly to prevent any movement of the individual package and sufficient covering to prevent the escape of liquid honey from the package if comb should be broken, the same can be shipped by parcel post.

Springfield, Mo. E. T. Bond.

[That comb honey *can* be sent by parcel post is probably true; but we have hesitated to advise the practice, because we feared that only a few persons would be successful in doing so. All the rest will make a bungle of it, and the result will be that comb honey will be ruled out from the parcel-post privilege as it is not now. We are taking the matter up, and hope we may be able to get small packages that will carry safely half a dozen sections of honey. A larger amount should not be sent in this way. In the mean time we wish to offer a caution against trying to send comb honey by parcel post for the present. We cannot afford to lose a valuable privilege—a privilege that will be very valuable in the future—by some ignorant carelessness at the present time.

A few years ago queens were barred from the mails for some months just because of the inexcusable carelessness of two or three beekeepers who attempted to send live bees in paper boxes. The mail clerks were stung, and forthwith a ruling was issued, forbidding the sending of queens by mail. What a time we had in getting back the privilege!—Ed.]

A. I. Root

OUR HOMES

Editor

After this manner, therefore pray ye: Our Father which art in heaven, Hallowed be thy name. Thy kingdom come. Thy will be done in earth, as it is in heaven. Give us this day our daily bread. And forgive us our debts, as we forgive our debtors. And lead us not into temptation, but deliver us from evil: For thine is the kingdom, and the power, and the glory, for ever. Amen. MATT. 6:9-13.

For some time back the Lord's Prayer has been much on my mind. Our readers will notice I have touched on it several times. Now, with this in mind you can readily imagine how deeply I took in the following sermon, preached by our good pastor. I said "amen" so many times that I hesitated about saying it any more, although I felt the sermon deserved it. You, my good friends, may say amen as much as you feel like it as you read it over.

A SERMON PREACHED IN THE FIRST CONGREGATIONAL CHURCH, MEDINA, OHIO, BY REV. H. SAMUEL FRITSCH,

OCT. 26, 1913.

The seven petitions of the Lord's Prayer fall naturally into groups—three, one, and three—three petitions relating to great universal facts of God—thy name, thy kingdom, thy will. One petition concerned with man's physical, temporal, material needs—daily bread. Three petitions for the inner, spiritual needs of man—which group forms the basis of our study to-day—"And forgive us our debts as we forgive our debtors. And lead us not into temptation, but deliver us from evil" (Matt. 6:12,13).

"Forgive us our debts"—what debts?

Certainly this petition does not cover the debts which man owes to man in a business way. It does not mean that the man who owes the baker for bread, the butcher for meat, the grocer for coffee and sugar, the tailor for clothes, or even the church treasurer for subscriptions, can get out of paying those debts by devoutly praying, "Forgive us our debts." Such debts can not be *forgiven,* they must be *given for.* They can not be canceled by praying; they must be canceled by *paying.*

Neither does this petition cover the debts that man owes to his God. We owe him a debt of love—"Thou shalt love the Lord thy God, because he first loved us." We owe him a debt of gratitude—"Oh give thanks unto the Lord, for he is good." We owe him a portion of our worldly goods—"Honor the Lord with thy substance and with the firstfruits of all thine increase." We owe him a debt of service—"Ye are not your own, for ye are bought with a price." These are all debts that we must pay. They are charged up against us in the divine ledger; and the petition "Forgive us our debts" is not a cheap and easy way of sidestepping the obligation by having the account wiped off the books. "Pay what thou owest!"

But what are the debts for which we should pray forgiveness? St. Luke's version of the Lord's Prayer leaves no doubt or ambiguity: "Forgive us our *sins.*" This petition, then, is a prayer for the forgiveness of sins.

Now, just what did Jesus intend when he taught us to pray, "Forgive us our sins"? Assuredly he did not mean, as some have fondly and foolishly imagined, that, if fervently prayed to do so, God will overlook our sins. I once knew a good church-member who made his pocket money by trading horses. In spite of his high standing in the church, his trades were often "fearfully and wonderfully made," and his ways in a deal were past finding out. This good man made it a practice every morning at family worship to pray thus: "O Lord, if to-day in the course of worldly business I commit wrong or deal unjustly, wilt thou in thy great mercy forgive me." But think you that that prayer would cause the recording angel to omit making an entry of that man's dubious deeds for that day? Think you not, rather, that the deliberate intention that lurked back of that prayer caused the recording angel to make a double entry—one for cheating at a horse trade and another for cheating at prayer? He who keeps right on sinning, expecting to fall back on the petition, "Forgive us our sins," will, I fear, fall mighty hard! Never can the promise of forgiveness of sin be taken as a license to commit sin.

Again, "Forgive us our sins" does not mean that there is any process of forgiveness whereby the natural results of sin may be canceled or annulled. The forgiveness of sin does not wipe out the natural penalty of sin. "The soul that sinneth, it shall die." Sin is a destructive force; and in proportion as a soul sins, it kills its finer fibers and its softer sensibilities. Sin is soul-suicide; and the bloody corpses of those of my talents and powers and opportunities that I have deliberately slain can not be restored to life, even by divine forgiveness. The slayer may be forgiven, but the slain come not to life again. "The wages of sin is death." Sin always comes back with the yellow pay-envelope; sin never accepts forgiveness for its debts. "Be not deceived; God is not mocked; for whatsoever a man soweth, that shall he also reap." The young man who sows his "wild oats" may be forgiven by the society which he has outraged and by the God whom he has wronged; but there is no process of forgiveness which can wipe out the terrible *harvest* crop. Be not deceived; the law of cause and effect is never set aside; the sinner may be forgiven for his sin, but he can not escape the penalty of his sin.

But what, then, is the purpose of this petition, "Forgive us our sins," if it neither furnishes license to sin nor yet cancels the penalty of sin? It is a prayer with power to remove the *guilt* of sin.

The worst thing about sin is the feeling of guilt that it produces. Not too strongly does Byron speak of guilt as

Oh that pang where more than madness lies—
The worm that will not sleep, and never dies!

And the worst thing about guilt is that it puts an impossible and impassable barrier between the soul and its God. As the guilt of the naughty child makes him shun his father and mother, so down from the time when Adam and Eve hid themselves in the garden, the guilt of man's sin has held him aloof from God. Man's guilt did not hold God aloof from man; it held man aloof from God. The guilty conscience always takes it for granted that the wronged party is holding himself aloof in anger. So man in his guilt took it for granted that God had withdrawn himself, burning with vengeance; and guilty man, instead of permitting himself to be drawn tight to the father-heart of God, held aloof and tried to propitiate an outraged parent with burnt offerings and sacrifices, with rituals and ceremonies. To overcome this aloofness, God sent his Son, not to reconcile God to guilty man, but to tell guilty man that God is reconciled, that God never was angry. God sent his Son to say to guilty man, "Never mind, my children. You've done wrong, and feel guilty; but don't let that feeling of guilt keep you away from me. Come! I forgave you long ago; come back to my heart." Oh the measureless, matchless love which kisses away the sense of guilt, and folds us tight in the embrace of forgiveness!

But if God has thus fully and freely forgiven, why then should we still pray, "Forgive us"? It must be understood that the prayer for forgiveness is not a plea that God may be forgiving—God needs no such plea. It is, rather, a plea that we may receive and accept that forgiveness, that the burden of guilt may be lifted from our hearts, that the barrier which guilt has thrown between us and our God may be broken down.

Before leaving this petition, it is well to remember that there is a condition attached: "Forgive us our debts, as we forgive our debtors." Listen, friends, are you and I willing to have God take us at our word, and forgive us *as* we forgive our friends? Are we willing that God should be as reluctant to forgive as we sometimes are with as many mental reservations, or with that complacent condescension which requires the pardoned one to grovel in the dust at our feet? "As we forgive our debtors." Let us be so loving and kind in forgiving our debtors that we would not be shocked or grieved if God should take us at our word when we pray this petition.

"And lead us not into temptation." Of all the petitions in the Lord's Prayer, this one has most troubled thoughtful people. God being God, does he ever, can he ever, lead anybody into temptation? And if God does not and can not lead anybody into temptation, then what's the use of asking him not to? Yea, verily, if God does not, and can not lead anybody into temptation, is it not presuming terribly to ask him not to? and is not that presumption dangerously close to blasphemy?

Did Jesus believe that God has a disposition to tempt people, a disposition which would make it wise for humanity to pray unceasingly, "Lead us not into temptation"? No words on this question from Jesus himself are preserved to us; but it is quite probable that he discussed the subject of temptation with his own family, as well as the circumstances of his own temptation. At any rate, this is what James, own brother of Jesus, says about temptation, and we may well believe it is a reflection if not a repetition of the teaching of his divine elder brother: "Let no man say when he is tempted, 'I am tempted of God.' For God can not be tempted with evil, and he himself tempteth no man. But each man is tempted when he is drawn away by his own lust, and enticed." It is contrary to the nature of God, therefore, to tempt man, and we must seek for some other interpretation of this petition than that which asks God to please be so kind as not to lead us into temptation.

This better interpretation we obtain by a common-sense punctuation of the petition. It was never intended that this sentence should be spoken in one breath: "Lead us not into temptation." The intended meaning is brought out by making the pause of a comma or of a dash after the word *us*. "And lead us—not into temptation—but deliver us from evil." We may bring out the thought by paraphrasing the petition thus: "O Lord, there are many objects and conditions and circumstances that appeal to our baser natures and inflame our lower passions. If we walk alone we are sure to blunder and stumble into some of these. We are like children that know not the pitfalls and the snares. We must be led. O Lord, take us by the hand, and lead us, lead us away from temptation."

James says that God tempteth no man, and he is right. George Eliot says, "The devil tempts us not; it is we who tempt him, beckoning his skill with opportunity," and she is right. Nothing from outside ever tempts man. Temptation always comes from within. But there are certain objects and persons that act like a lighted candle to the powder-magazine within. Now, there is little use in praying God to remove the powder-magazine from within us. God put the powder-magazine there for a purpose. Neither is it incumbent upon us to pray God to blow out all the candles in the world. If all the candles that tempt humanity were to be snuffed out, this would be a monotonous and melancholy world indeed. Virtue in connection with temptation consists neither in the removal of the powder-magazine, which is the internal capacity to do evil, nor in the extinction of the candle, which is the external stimulus to evil. It consists in walking so carefully and circumspectly that the flame never gets near enough to set fire to the powder.

But there are two facts which make such moral chalk-line walking extremely difficult —our ignorance and our curiosity. We blunder into temptation because we are ignorant of the location of the pits and the snares. We *coquette* with temptation because we are curious. Although we have no disposition to be caught, we love to "nibble" at the devil's bait. Although we have no intention to invest, we like to paw over the sales on the devil's bargain counter. Although we have no desire to get burned, we delight to play with fire. Although we have no desire for a ducking, we like to see just how far we can skate on thin ice. Because of our ignorance and our curiosity we need a strong arm to lead us—the arm of one who knows the snares and steers us away from the pits—the arm of one who will firmly drag us away when, like little children, we hang back to pat the pretty redhot stove or to play with the beautiful rattlesnake. Lead us—so that we do not stumble or wander into temptation. Lead us—not into temptation.

Savior, lead me lest I stray;
Gently lead me all the way;
I am safe when by thy side,
I would in thy hand confide.

The next petition is closely linked to the preceding one. "And lead us, not into temptation, *but deliver us from evil.*" We can not always flee from temptation. Duty and necessity often demand that we go where temptation is thickest. Then we need to pray for deliverance—"Deliver us from evil." "Lord, lead us, so that we may not ignorantly stumble or wantonly wander into temptation. But if duty demands that we take the path where ten thousand temptations lurk in ambush; if, to develop the moral fiber of our character, it becomes necessary for us to resist temptation even as the resistance of the tossing storm puts the iron into the majestic oak, then, O Lord, give us the strength to overcome, that we may be delivered from evil, even as the soldier is delivered from the enemy that lies vanquished under his heel."

To pass by on the other side when there is no occasion to go near temptation is both wisdom and virtue; but to walk away from duty because the path of duty leads *through* temptation is both selfish and cowardly. The medieval monks who locked themselves behind stone walls away from the allurements and temptations of the world believed themselves most self-sacrificing and brave. But were they not rather most cowardly and selfish? "I pray not that thou shouldest take them out of the world," petitioned Jesus, "but that thou shouldest keep them from evil." Duty never runs from temptation. Duty meets danger bravely, fights heroically; and, fighting, prays, "Deliver us from the evil."

The noblest character, too, is not grown in glass houses, shielded from every blast and chill of temptation. It is developed on the bleak hilltop where the wild storm breaks most furiously. There is no snap in the character of the one who always has a soft snap. A wealthy mother was lamenting the puny, sickly condition of her child. Another mother, a wholesome, practical woman, spoke thus: "You are killing the child with mistaken care. The little thing hardly knows what it is to put her foot on the ground. She is wheeled in a cab all day long. The little dear hardly knows what her feet and legs are made for, and she is not allowed to use them in a normal way. Put her on the ground and let her walk and run and fall down. Suppose she does get some blue bruises. She needs more color. Turn her barefoot with a simple, sensible dress on. Suppose she does stub her big toe. Blue forehead and blue toes are better than '*blue pills.*' I wish *I* had her for a while. I'd have her rosy, and fat as a little pig."

It was for the sake of Timothy's character that Paul advised him to endure hardship. The ancients believed that the strength of a slain enemy, by some subtle process, was passed over into the body of the victor. Certain it is that every temptation overcome makes us that much stronger. Oh let us not always pray for easy, sheltered, shielded lives! Let us pray for strength to resist, power to overcome! Let us pray for that deliverance *from* evil which comes by victory *over* evil.—*Rev. H. S. Fritsch.*

May I be permitted to add a little in regard to forgiving our debtors? It sometimes happens, although not very often, that a man is absolutely *unable* to pay his debts, perhaps to pay the baker for bread. Sickness and other misfortunes may so bring it about. In such a case the baker should forgive it and forget it, and feel just as friendly and pleasant toward the debtor as if it had never happened. Of course there are people who, perhaps, are a little too ready to give up and say they can not pay, when they really *might* pay if they tried hard enough. There is another thing in connection with this matter. The burden of supplying needy but helpless people with bread should not all fall on one person. When a man by misfortune gets into a destitute condition, the best way is to have some friend start a subscription, and take the money thus raised from the community at large, and pay both the butcher and baker, or at least pay the greater part of the debt. Still another thing, this injunction to forgive our debtor, it seems to me, is intended to ward off neighborhood quarrels, and especially to guard against holding a " grudge," if I may use the slang expression. Sometimes neighbors get into a jangle and will not speak to each other, not only for months but sometimes for years. I think this latter case, however, is a good deal a thing of the past. Years ago there used to be jealousy and clashing between men in the same line of business; but if I am right *this* is largely a thing of the past. People in this enlightened age are becoming ashamed at this sort of narrow-mindedness. "Forgive and forget" is getting to be the rule; and I have reason to believe, too, that people of the present day will hardly *tolerate* a man who prays in public, and cheats in a horse-trade at the same time.

The suggestion that we love to *" nibble* at the devil's bait " made me smile while I uttered my biggest amen. It made me smile to think how many times during the past seventy years I have gotten into trouble because I was curious in regard to Satan's machinery. When the spirit rappings first came out and my good mother urged me to keep away from their "seances," I urged that it would do no harm to " investigate;" but when I saw one good man, a minister of the gospel, go to the insane-asylum, I decided that my mother was right. Small boys, and sometimes larger ones, are curious to know what *beer* and *whisky* taste like, and urge that " it would do no harm to take just one taste," feeling sure that it would be just one taste and no more. And it is the same way with cigars and tobacco. Oh dear me! what a world of sin and trouble comes from temptation that poor weak humanity can not resist! The temptation to " coquette " with the devil, or to take " just one little nibble," showing off our skill in letting people see how we can "skate on thin ice," is along the same line.

If any of our friends would be glad of a sample copy of this sermon to send to their friends, just say so on a postal card. The illustration of the foolish mother who wheeled her child about in a cab when her child was perfectly able to walk, brought out another hearty amen. By all means let us have the " blue toes " in place of the *blue pills.*

MARCONI AND SOME INCIDENTS OF HIS BOYHOOD.

I presume our readers have seen a notice in the papers to the effect that Marconi expects to be able soon to telephone across the Atlantic by wireless. Just think of a human voice being carried clear across the ocean! I well remember the excitement about the Atlantic cable, and the cheers that went up (after long and disappointing delays) because *signals* had actually been received. Little did we dream then that the time would ever come when that expensive cable could be dispensed with, and that we could not only *talk* through the wire but the final outcome would be that we should be able to talk without *any* wire at all.

With the above for a preface let me state that I have quite recently had quite a talk with Mr. A. E. Roberts, International Y. M. C. A. Secretary, of New York. Just recently Mr. Roberts was sent by our Government to investigate agricultural problems in the Old World. During his trip he met at Bologna, Italy, Marconi's father, still living. The father said this about his boy: He said the boy either would not work at what he wanted him to do or else he had hard work to make him do it. He was so busy exploring every thing that he could not take the time for routine duties. One of his tricks was to pull all the clocks to pieces in the neighborhood to see how they were made; but I think he got them together all right. His father said he spent so much time with wires, cogwheels, and such trifling things, that they were tempted at times to think he was not quite level in his head. The boy finally ran against electricity; and he was so eager in experimenting that he would hardly take time to eat his meals. His first success in wireless was in getting communication from one corner of his father's farm to the other. Then he began to have visions of great things. But some neighbor dampened his ardor by telling him he could not get over hills and mountains. In order to test the matter he secretly got one of his father's hired men to help him, and then the two went away to where there was a considerable hill. The attendant was to go to the further side of the hill and report if he received any signals. The signal came through all right, as we *now* know it would do; but the boy did not know it then; and when the attendant returned the signal, and told him the hills were no *obstacle,* he was so overpowered by the good news that he went into a dead faint, and the attendant found him unconscious.

The above illustrates the *intense eagerness* with which the boy worked, and his peculiar sensitiveness to disappointment or the reverse. Now, here is a moral. I have frequently talked about the "sports" among fruits and vegetables. It transpires that there are sports in humanity. This boy, with his queer passion for the wonderful things in nature, was for a time thought by the neighbors, and perhaps by his father, not quite evenly balanced.

Some time ago I told you of a young girl with whom I became acquainted in my early manhood. After I had set her at work in our factory her mother made some inquiries, and ended up by saying, " Well, Mr. Root, if she is of any use to you in the factory, do, ' for the land's sake,' keep her as long as you want to. She is ' not a mite of use ' in doing housework around home." Her mother did not understand even her own child, and did not recognize that God calls us in various directions.

HEALTH NOTES

CHERRIES AS A HEALTH FOOD.

May God be praised for the beautiful luscious cherries that we have been having since about the middle of June, and are still having to-day, June 27. Just as my apples began to give out (about June 12), beautiful cherries appeared in the market, and they are about the finest ever grown in this vicinity, so far as I can remember. In our new home, when we moved into the bungalow there were just two cherry-trees that did not stand in the way of the buildings. These were so full of bloom shortly after I returned from Florida that I told Mrs. Root it would be impossible for *all* the blossoms to produce cherries; but when the trees were loaded with beautiful fruit, one ripening perhaps ten days or more before the other, I began using them in place of my accustomed apples, and it was one of my " happy surprises " to find that they answered just as well, and, in fact, a little better; and just now my verdict would be that plenty of sweet luscious cherries are fully equal to grapefruit for kidney or urinary troubles. In order to satisfy myself in regard to the matter I ate a great lot of them not only at my five-o'clock supper, but I ate more just before going to bed to see if they would disturb my digestion or my sleep; and good old dame Nature did not make the least bit of protest. In fact, I have never felt better, and it seems I have not for a long while had so much strength for working in the garden with my light keen hoe as since I have been on the "cherry diet."* By the way, there is one thing peculiar about the abundant cherry crop this summer. There do not seem to be any of the mischievous curculio or other insects, and as a result there are but very few wormy cherries. Let me give you a clipping in regard to the matter, from the *Plain Dealer:*

> CHERRIES GO DOWN TO $1 PER BUSHEL.
>
> Cherries were in the heaviest supply ever known on this market, and the prices were the lowest ever known. Sales of pretty good stock were made at from $1.00 to $1.50 a bushel crate; there were sales at $2.00 in the early morning. One grower had a wagonload on which he offered to take 80 cents a bushel. Good sweet cherries still bring $3.50 and $3.75 a bushel, and as high as $4.00.

I wonder if this great crop of cherries has not been a blessing to others as well as to myself. When I first began to go to school some seventy years ago the teacher taught us a little nursery song. I think it started:

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* *Later.*—Since the above was in type I have eaten some cherries that were rather tart, and not fully ripe. The result was not quite so encouraging. I think it is best to add that the fruit should be dead ripe, and perhaps not too tart, in order that we may eat it with impunity. And, by the way, if you are going to eat *any kind* of fruit to the extent I do, especially if you are elderly like myself, be sure the fruit is dead ripe. Apples that are not real mellow and well ripened have often disagreed with me in the same way as did the sour cherries not perfectly ripened.

Cherries are ripe!
Cherries are ripe!
Oh give the baby some!

Now, if it is really true that the cherries did not injure the babies, but, on the contrary, did them as much good as they do your old friend A. I. Root, it seems to me we can all give a little more attention to the cherry crop by planting the varieties that ripen at different times, as in that way the season can be prolonged a month or even six weeks; and when cherries are gone in Ohio you can take an excursion up to the northern part of Michigan and find plenty of them, I think, well up into the month of August.

Now just one more suggestion in regard to cherries. Why cannot cherry juice be put up in little bottles just as grape juice is kept for sale at our corner groceries, at a price that everybody could afford at any time in hot weather? Did not the Creator give us the luscious cherries just when the hot weather comes on, *because* at such a time everybody craves (*and needs*) this delicious acid fruit?

You may recall that, some years ago, I spoke of a big factory in northern Michigan where they bought cherries of the farmers and "processed" the juice to supply the soda-fountains of our land with *real* fruit juice. I have before mentioned that grape juice is probably taking the place, to a great extent, of intoxicating beer and other liquors. Now, why can we not have *cherry* juice put up in the same way? My good friend W. P. Root just informs me that in this county cherries are allowed to hang on the trees and rot, because it does not pay to pick them. One man who had more than he could sell said, "They are a nuisance this year." Surely these luscious fruits might either be canned, or the juice be preserved in some way, especially if it would conduce to the health of the public at large.

There has been a lot said about short cuts from producer to consumer. Now, can any of you imagine a *shorter* cut than to climb up into a cherry-tree as I have been doing, where the cherries are so thick you might just grab them with your mouth, without any need of even the "hand-to-mouth" method, as it is sometimes called?

CHEESE AS AN ARTICLE OF DIET.

Our readers may, perhaps, recall what I have several times mentioned—the use of cheese with my apples or other fruit at five o'clock in the afternoon instead of a regular supper; and I might say that during very much of all my life I have somehow craved cheese when eating much fruit. When I raised luscious watermelons on a gravelly southern slope on the hills of Summit Co., Ohio, when a boy, when we had nice melons my friends used to laugh at me because I wanted a little bit of rich well-ripened cheese to go with the melons; and when making a supper of the luscious juicy cherries mentioned in another column a piece of cheese to go with them seemed to make a complete meal and a "balanced ration." In fact, I do not know that I ever enjoyed any banquet or any other food in my life more than those luscious cherries with a piece of real good cheese.

In view of the above you may believe I was much interested in Bulletin No. 221 from the Ontario Agricultural College, entitled "Food Value of Milk and its Products." I turned over to where the greater part of the book is devoted to a discussion of cheese. It seems there have been made, both in the United States and Canada, some exhaustive experiments in regard to cheese and fruits. I have made a few extracts from the bulletin here and there.

FOOD VALUE OF MILK AND ITS PRODUCTS.

One pound of cheese will, however, furnish just about as much actual nourishment as two pounds of fresh meat.

Bread and cheese can be used in such amounts as to constitute what is called a balanced diet; *i. e.*, in such amounts as to supply the right proportions of muscle-forming foods in comparison with the energy value. But fruit added to the diet would render it more attractive and palatable, and favor digestion. It also tends to decrease the possibility of constipation. A case was investigated and reported by the Office of Experiment Stations, U. S. Department of Agriculture, of a man who lived for months upon a diet of bread, cheese, and fruit, and who remained in good health and active, and did not weary of the monotony of the diet. It will generally be found that the watery and refreshing fruits or succulent vegetables with their large supply of cellulose are a pleasant contrast to the concentrated and fatty cheese. Thus, when planning menus in which a cheese dish is the chief feature, pains should be taken to supply crisp, watery vegetables or fresh-fruit salads.

Economy would be effected if cheese were used in at least one meal a day with the deliberate intention of procuring the essential proteins from this source rather than from the more costly meats.

In connection with the use of raw cheese there is, however, one point that should be emphasized; and that is, it should be thoroughly masticated, otherwise the digestive juices do not readily penetrate the fatty matters of the cheese.

In the same connection attention is called to the food value of cottage cheese established by this work. This is another cheap and (to many) a very palatable product that could be introduced to a much greater extent in the dietary at a great saving in the total cost of food.

The primary objects of the Minnesota experiments were to study the digestibility of older cheese than had been used in the Connecticut experiments. and to study the digestibility of other varieties, as well as the so-called condimental value of some of the more highly flavored varieties. In these experiments the basal diet was bread and oranges, which were previously studied. The duration of each experiment was, as in the Connecticut experiments, three days, The last sentence in the above reminds me that at one time when my apples were gone, and no other fruit seemed available, I selected some nice large navel oranges; and if you have never tried it I would suggest making a supper (or, if you choose, any one of the three meals of the day), by the use of two or three navel oranges and about two ounces of cheese.

One of the extracts I have given makes mention of the necessity of *thorough chewing* in order to enjoy cheese to the fullest extent. It is most imperative that we chew it until it is nothing but a liquid. This brings out a flavor and deliciousness that perhaps you never dream of until you have tried it. Many people have objected to cheese as being conducive to constipation. But that is because you do not use fruit enough with it to make a balanced ration. Use plenty of fruit, with cheese in moderation, and I am sure you will have no trouble along this line.

ROBBING SICK PEOPLE.

Mr. A. I. Root:—In looking over GLEANINGS I find in more than one number mention made of a "humbug toy" under the name of electropoise, oxydonor, etc. Can this oxypathor of the enclosed pamphlet be the same old foe? Within the last week a female agent has made her appearance among us, and has been very successful in a few days. Some three years ago we had an epidemic of infantile paralysis, and this woman is making a rich harvest among the parents of these unfortunate little ones. I fear I have made enemies of very old friends by trying to point out to them the impossibility of quick recovery in these cases; and it is such a cruel thing for this woman to raise false hopes, both in the minds of the parents and the poor little sufferers themselves, besides taking $30 for an utterly useless contrivance. In GLEANINGS for Sept. 15, 1910, you make mention of circulars explaining this fraud. If you still have them at hand, would you kindly send us one? The explanation of these contrivances sounds much like the one we have before us. We are printing a word of warning over our own signature, in our local paper, referring prospective buyers to your publication, *Rural New-Yorker*, also *Colliers' Weekly*, which published an article denouncing the oxypathor.

MRS. W. E. LAMMING.

Duncan, Vancouver Island, B. C., June 22.

My good friend, the oxypathor is the same old "foe" as you put it. In our last issue I made mention of a young friend of mine who is likely to lose his life because he listened to quacks. These people should be arrested and imprisoned if nothing else will cure them of deliberately taking money from the innocent and unsuspecting. I will say to our readers, the pamphlet in question consists of three or four pages and some drawings in regard to *constipation;* and they wind up with these words: "In this condition, fortunate is the person who secures an oxypathor. Its use impregnates the entire system with oxygen. Every pore in the body imbibes oxygen." Is it not strange that people of apparent intelligence can be humbugged by such a mere toy as the one mentioned?

TEMPERANCE

STATEWIDE PROHIBITION; AWFUL THINGS THAT WILL HAPPEN, ETC.

Just now the brewers and distillers are getting busy telling the people the consequences of rashly voting to put the drink business out of commission. Here is a clipping from the *Wyoming Ledger-Journal:*

> Do you know that the distilleries of Peoria alone consume the equivalent of the entire corn product of the States of Illinois and Iowa as fast as it leaves the farms? Do you know that the production and distribution of alcoholic beverages all together give employment directly to about 1,200,000 people, representing a population of 6,000,000 out of a total population in the United States of 98,000,000? And if we figure those who would be indirectly affected, the number employed would reach about 2,000,000, representing a population of about 10,000,000.

I cannot just now give the statistics in order to show the tremendous exaggeration in the above figures; but if I am correct we are told by good authority that the entire amount of corn used in the production of liquors amounts to a *very small proportion* of the corn crop grown in the United States; so the statement in regard to the distilleries of Peoria, as given above, are almost an entire whole-cloth falsehood. Suppose it were possible to put in figures the annual cost to our nation of the crime resulting from the use of liquors, also the cost of hospitals and asylums to take care of the product of the liquor business, to say nothing of the loss of life annually, and the cost of sending our youth to fill drunkards' graves. The Anti-saloon Year Book, that I have already mentioned, gives us correct figures covering the whole disgraceful business.

But even if we admit that a certain number will be put out of employment if the distilleries are shut down, are not these figures largely or entirely offset by the number of those who are out of work because they helped to *dispose* of the product of those distilleries? If there is any economic connection between the liquor business and a steady job at work, it can be made plain only by an inside examination of the walls of the penitentiaries of the country where men are plentiful and women hard to find.

WEST VIRGINIA SETS THE PACE.

Not only is the whole United States, but to some extent the whole wide world, looking toward West Virginia to see whether she will enforce the law very soon to take effect. See the following, which I clip from the Cleveland *Plain Dealer:*

> TO BE A VERY DRY STATE.
>
> What is declared to be the most stringent prohibition act on the statute-books of any State takes effect at the beginning of next month in West Virginia. If the law is enforced, West Virginia will be perhaps the driest State in the Union.
>
> In 1912 the people ratified a constitutional amendment providing for state-wide prohibition, and the legislature of 1913 enacted a measure putting the amendment into force. West Virginia thus becomes the ninth prohibition State in the Union.
>
> The West Virginia law makes it unlawful to make, sell, or give away intoxicating liquors anywhere in the State. Druggists and clubhouses cannot sell it; it is unlawful to advertise liquors by bill posts, circulars, newspapers, or otherwise in the State. A State superintendent of prohibition is provided to see that the law is enforced.
>
> When it decided to be dry, West Virginia apparently decided to be very dry. The more than 90,000 majority cast in favor of the amendment would seem to justify the legislature's action, for 90,000 is a considerable majority in West Virginia.

Permit me to direct attention to the matter of liquor advertisements in newspapers. If I am correct, it is unlawful for any periodical in that State to accept any advertisement of intoxicating liquors. May God be praised that we have at least *one* State in the Union that dares undertake to throttle the enemy as West Virginia has done. Let us all pray that they may have the nerve to see that this law is *fully enforced.*

INTEMPERANCE—NOT HALF THE EVILS HAVE BEEN TOLD, EVEN IN GLEANINGS.

> I believe in Terry, too, although I do not live up quite so closely to all his teachings, and I watch the garden and temperance columns of GLEANINGS with a good deal of interest. Furthermore, I believe that half of the evils connected with the liquor-traffic and its full dangers has not been told, even in GLEANINGS.
>
> La Salle, N. Y., June 4. T. GREINER.

Right in line with the above statement by our good friend Greiner comes a sad incident that just happened right here close by our own home. A man 31 years of age was getting to be so intemperate that his wife went over to see her father-in-law to see if something could not be done. As a result, the father went over to see his son and to talk matters over with him. So far as I can learn the matter was discussed in a friendly way, the son promising to do better. But some way it came about that, as the father started to go home, the son offered him a drink. This indicates that the father was *also,* at least to some extent, intemperate in his habits. They drank together. After the father started for home the son drank some more; and as a result he imagined he was being imposed on, persecuted, etc., and then followed his father, who was part way home. He grabbed his father by the collar, and began to quarrel. The father, in self-defense, struck the son a blow with a broomstick and fractured his skull. The wife of the young man was a witness to this tussle on the road as she was on her way home. During the night the son died. The wife gave out that he had died from heart disease. The funeral followed, and the body was buried. It seems, however, the neighbors found out something about the quarrel in the road. The body was exhumed, and the old father is now to be tried for murder. It seems the father, his wife, and the daughter-in-law concluded to say nothing about the fight, thinking no one else knew any thing about it. Now for the question as to who should be punished. Shall we go on as we have been doing for ages past, punishing the men who commit murder when crazy with drink, and let the man who furnished the drink to people living in a dry county go free, and let the "traffic" *go on?*

THE GREAT "HANDICAP" ON HUMANITY.

We clip the following from the *Union Signal.* What do you think of it?

> NO ALCOHOL FOR THIRTY YEARS.
>
> If really, for once, the entire civilized race of mankind should abstain from alcohol for thirty years, so that a completely sound generation could come into existence, there would result a transformation, a raising of the whole culture anew, a heightening of the happiness and welfare of men, which could easily be placed beside the greatest historical reformations and revolutions of which we know any thing.—*Prof. Wilhelm Weygandt, of Wurzburg.*

BREEDING CRIMINALS.

The publishers of the book, "Old Age Deferred," have the following to say in regard to my extract from that book about breeding criminals:

> We note that you have strong impressions as to the importance of having a right genealogy. It is pretty hard, however, in accordance with the Constitution of the United States, for one class of people to regulate the personal liberties of another class; and if we began that sort of thing, where would we end? An enthusiastic eugenist recently reports that within a century or so people who were regarded as average normal now would be shut up in an insane-asylum because of the great improvement brought about by eugenic methods. The medical profession, as a class, are not enthusiastic on eugenics.
>
> F. A. DAVIS CO., Medical Publishers,
> per A. G. CRANDALL, Adv. Mgr.
>
> Philadelphia, Pa., June 29.

Gleanings in Bee Culture

VOL. XLII. AUG. 1, 1914, NO. 15.

POLLYANNA
THE GLAD BOOK

By **ELEANOR H. PORTER**, author of
"Miss Billy" and "Miss Billy's Decision,"

and "Gleanings in Bee Culture," one year, Both for $1.50

The book, POLLYANNA, has been one of the best-selling books of the season because of the winsomeness of the story.

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Send for the book as a surprise for the young people of the family who will enjoy Pollyanna's "Glad Game" as much as will the older readers. A little romance in the life of the aunt forms the plot of the story, and the reader finds himself wondering again and again how it will end.

As long as our supply lasts, we are offering a copy of POLLYANNA and GLEANINGS IN BEE CULTURE one year for $1.50.

Twelfth Printing

Read some of the Press Comments:

"Pollyanna is the 'gladdest' book that was ever written. It is of more real value than any thousand sermons to which I have ever listened."—**Passaic Daily News.**

"It is a book that charms at once by its style, and delights by its character-drawing and the interest developed by its story."—**The Boston Journal.**

"Pollyanna is a delightful character, and the book refreshingly natural."—**Cedar Rapids Record.**

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Canadian postage, 30c extra. Foreign postage, 60c extra.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio
H. H. ROOT, Assistant Editor E. R. ROOT, Editor A. L. BOYDEN, Advertising Manager
A. I. ROOT, Editor Home Department J. T. CALVERT, Business Manager
Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLII. AUGUST 1, 1914 NO. 15

EDITORIALS

Our Cover Picture

THE view shown on our cover for this issue calls to mind the story of the hilly farm where the ground was so steep that one looking up the chimney could see the cows in the meadow outside. There are no cows in the meadow in this instance; but the view certainly bears no resemblance to a prairie. The picture shows a part of D. M. Bryant's apiary at Ethelfels, Va.

Edition of Annual Report in Iowa Exhausted

MR. FRANK C. PELLETT, State Inspector of apiaries for Iowa, has advised us that there are only a few copies left of his annual report, and that he can no longer supply requests outside the State except to libraries. Quite a large edition was printed, which was expected to last possibly for two years; but there has been such a demand for them that they are already nearly gone in less than six months.

Sending Goods by Parcel Post

THE following letter from a subscriber will explain:

> In GLEANINGS for July 1st editorials, Limitations of Parcels Post, you say it should be understood that many things can be sent cheaper by express than by mail. I think when a customer orders goods by parcel post, that it should be sent that way if possible, regardless of cost, as your customers often live on rural routes several miles from express office, which would mean a delay by not knowing when goods arrived at express office as well as the good part of a day's journey to and from the depot to obtain goods after notice of arrival of same, while by parcel post they would be delivered same day or the day following, which often means dollars to the busy beekeeper.
>
> Filion, Mich., July 11. DAVID RUNNING.

In the editorial referred to, if we did not make it clear at the time we wish to make it so now, that no dealer will take on himself the liberty of sending goods by express if there is no express office where the customer lives. But the chief trouble complained of was that customers would demand that a 50-lbs. weight be sent by parcel post when clearly the limitations of parcel post forbid it. If a customer will ask his postmaster before ordering goods he will be told what can and cannot be done.

Nearly Lost his Life in Taking a Swarm from a Tree

A STORY has been running through a number of eastern papers telling of a thrilling experience which Milton Robb, of Coleville, Pa., had in attempting to get a swarm of bees that had clustered on a limb of a tree. Mr. Robb had gone up the tree intending to saw off the limb and allow the branch to drop to the ground below where a hive had been prepared. Miscalculating the weight of the limb and bees he was nearly killed by the limb sagging down, throwing the bees all over him before he could get out of the way. As it was some time before his brother could get help to rescue the man from his perilous position the result of the undertaking came very near being serious.

In sawing off a limb on which a swarm is hanging, a cut should be made with the saw on the under side of the limb perhaps a fifth or a quarter of the way through; then, after sawing on the upper side, if the limb breaks off it will fall and not swing in toward the tree.

Outdoor Feeding at our Home and Basswood Apiaries; Objections to Outdoor Feeding

SINCE our honey-flow at Medina was over we have had some difficulty in raising queens at Medina and vicinity. The extremely hot weather has so parched the ground that there seems to be nothing bearing nectar in reach of our yards except the one located in the swamp near Akron, as spoken of elsewhere. It has been almost impossible to get into our hives to do any thing. The last flow we had was basswood; and when that stopped the bees were crazy to steal, beg, or borrow. Queen-rearing operations were brought almost to a standstill. We supplied the boys with large cages to set over the hives while they were working. But that did not stop the pilfering. Finally we started up our outdoor feeders, when, presto! the ugly disposition of the bees as well as the robbing stopped instanter.

For the benefit of those who may have forgotten about feeding outdoors, we may state that only sweetened water is used for the purpose. That is to say, we mix sugar and water in the proportion of ten parts of water to one of sugar. This is placed in the trough feeders of the Simplicity or Alexander type. For 50 to 100 colonies there should not be less than 12 of such feeders. In other words, the feeding area must be scattered over considerable area to prevent the bees from crowding each other.

The strength of the sweetened water will depend somewhat on weather conditions. Sometimes a ten-to-one solution is a little too strong, causing the bees to rush at it too hard. In that case we have used a strength of twelve to one. At other times eight to one is too weak, and the bees will hardly touch it.

If one cannot obtain the ordinary trough feeders he can use a series of shallow dishes, pouring about an inch or so of syrup into each one of these receptacles. Then throw in a few handfuls of straw or dry grass so the bees will not drown in the mixture. The advantage of the trough feeders is that the bees do not meet the obstruction of the straw against their wings in the attempt to fly, thus prematurely wearing out their wings. The objection to the straw may be overcome by using wooden floats made of several slats nailed together.

There will be no need of practicing outdoor feeding except in cases where hives must necessarily be opened. In the production of extracted honey it may sometimes be necessary. In some cases, when one is extracting after the general honey-flow, he may find it an advantage to practice outdoor feeding during the time the hives are being opened. In such a case he should use honey as a sweetening agent rather than sugar, otherwise he will get sugar in his honey—enough so it might cause Uncle Sam to class it as adulterated.

Feeding in the hives is far to be preferred except to prevent robbing. Outdoor feeding causes the bees to wear themselves out unnecessarily, since the flight back and forth to outdoor feeders, the jostling and rubbing themselves against each other in their struggles to get at the sweet, causes them to wear out their wings. The feeding in the hives produces no such effect.

Again, it sometimes happens that one finds his entire yard is on the verge of starvation. When he discovers that this is the case he can feed at once by feeding outdoors. Later he can practice the in-hive plan, which we decidedly recommend.

The outdoor feeding has the further objection that other bees in the neighborhood, including those of other beekeepers, are fed at your expense.

Migratory Beekeeping in and about Medina and Akron, O.; Bee-forage at Swamps in the Fall; a New-old Scheme to Make Increase on Swamp Bee-pasture

We have been practicing migratory beekeeping, moving bees from Medina to Florida and from Florida back again after making increase. In spite of the fact that we brought back the equivalent of about 900 colonies we have only about a third of them left, the rest of them being all sold off for nuclei and pound packages. At the present rate we shall not have a hundred colonies left. If so we shall be up against the problem of making increase so that we can have enough bees to send a carload south again, if we should so decide.

We can make a colony, according to experiments made by our Mr. Selser at Philadelphia, by feeding sugar syrup, for about $1.00. But this amount on 300 colonies would be $300. With an automobile truck for moving bees from one locality to another, $300 would be more than enough to move the bees in all directions from Medina, and then move them back again for cellar wintering, provided, of course, suitable localities could be found where the bees can breed up on natural fall pasturage, and thus eliminate the cost of sugar.

During the last week or so we have been scouring the country in an automobile. During one of these trips we came in contact with Mr. A. J. Halter, of Akron, Ohio, 20 miles away—a city where more rubber tires are made for automobiles than in any other city in the world. At one of Mr. Halter's outyards near a swamp he discovered he could make increase after the main honey-flow was over, with very little expenditure for sugar. Some years he does not buy any. As we are needing more bees we bought a hundred colonies of him, and have engaged him to increase this hundred in that swamp location up to two hundred before the bees are removed to Medina, and he thinks he can do it. As this apiary is near big swamps, there is an abundance of bee-pasturage. As soon as clover and basswood stop there is a succession of one flow after another until late frost during the first of October. Sometimes, says Mr. Halter, the bees breed so fast that they will swarm unless given a large amount of room. At other times the flow is intermittent, but just fast enough most of the time to keep up breeding; and when the bees go into winter quarters they are in fine condition.

Ordinarily there is not much honey in most of our northern localities after Sept. 1; but after that date Mr. Halter has split his colonies in halves and built up each half into a fair colony for winter. We are starting with a hundred colonies about the last of July. What increase he will be able to make for us during the next two months remains to be seen; but we are arranging to send over more bees where there are something like 1000 acres of swamp land, only parts of which are used for pasturing cattle. If we can " turn the trick " we shall pasture bees there also.

THE BEE-FORAGE IN THAT THOUSAND-ACRE SWAMP.

We had a great curiosity to know what might be found in that swamp where bees breed so well, and accordingly drove over this week. We took along Dr. C. D. Freeman, a botanist, and Judge Kennan, of this place, and on arriving at Akron picked up Mr. Halter. Together we went clear around the swamp with Mr. Halter as guide; and one needs a guide in such dense shrubbery and underbrush. We would penetrate the swamp a half-mile or so, and then go back to the machine, run up the road a distance of several miles, and then take to the swamp again. In that way we traversed the whole area, or, to speak more exactly, the outer edge of this series of swamps.

It has been said that a large portion of this swamp land covers a subterranean lake; and the statement has been made that certain of the islands where the water comes to the surface are really floating islands, because their position changes every now and then, especially after a big wind. The further statement is made that there are certain bottomless pits and other places where one may be so mired that unless he can secure help he will be buried in unknown depths. (We have accepted the two last statements with a few grains of allowance.) We did not penetrate far enough into the swamp land to form very much of an idea of its interior. After we had gone half a mile we concluded it would be far more practicable to hire an aeroplane, as it was almost impossible to penetrate some of the dense thickets. However, we came to the conclusion that what we found on the outer edges of the swamp we should probably find at the interior.

Here were hundreds and hundreds of acres of waste land, some of which cannot be used even for cow pasture; but, fortunately, we found a number of well-known honey-plants—plants which we would not have recognized except for the assistance of our friend Dr. Freeman. First, there was the familiar sweet clover on the upland. Then came the common milkweed. But what attracted our attention particularly on one of these incursions was a mass of showy red blossoms that were distributed over small patches here and there over the swamp land. Dr. Freeman identified this as swamp milkweed (*Asclepias incarnata*). The bees were busily at work on it—hundreds and hundreds of them. Then we found other hundreds busy on the blue verbena, sometimes called " yervain " (*Verbena hastata*). The roar of the bees as they made their way back and forth from our apiary a quarter of a mile away; the blue and the crimson as we found it here before our eyes in the swamp caused us to see visions of beeyards scattered around these thousand acres; but this vision may materialize in only a very limited way.

" But, Mr. Halter," we said, " what comes on next when these are all gone? "

" Look," he said, as he pointed out some boneset, or thoroughwort. " Here is a plant that is supposed to have wonderful medicinal value."

When we asked the doctor what *he* thought about it he gave expression to one of those dubious smiles that convinced us he did not take much stock in the statement.

For the benefit of our botanical friends we may say this is known as *Eupatorium perfoliatum.* Boneset, or thoroughwort, is a good honey-plant for breeding up; but the honey is of a very inferior quality. Unfortunately it comes on at a time when buckwheat is being stored. Buckwheat honey with boneset in it is practically ruined for table use, for the honey, like the leaves of the plant, is bitter.

Pushing on further we found various species of wild sunflower; acres and acres of goldenrod; button-bush; some species of saw-weed, and asters galore; and last but not least some stray specimens of Simpson honey-plant, or figwort (*Scrophularia nodosa*).

This plant, be it said, provoked a good deal of discussion thirty years ago. A. I. Root, in his early days, had a big plot of it; but after trying that and the spider-plant he concluded that, while both were remarkable yielders of nectar, the cost of cultivating either of them would render it unprofitable to set them out for honey alone.

It is quite remarkable, but nevertheless true, that this Hudson swamp land is not wet or spongy at this time of the year. The soil is of a black muck in character; and, while soft under foot, it is not wet in the summer or fall, although Mr. Halter says that in the spring of the year this land is covered with water.

THE MENTOR SWAMPS.

We visited some big swamps near Mentor and Ashtabula, in the northeast part of the State, in company with Dr. E. F. Phillips. We told him what we had found near Akron, or, more exactly, Hudson, O., and he remarked that his parents lived in Ashtabula, and he desired to look over this swamp with us if we could spare the time. As we had already gotten the swamp fever (or mania) we were curious to know what we should find at Mentor; but examination showed an entirely different condition. A large portion of it is covered with about a foot of water with a heavy growth of brush, but only a few honey-plants, and these scattering.

MILKWEED POLLEN MASSES; DO THEY KILL BEES?

While we were studying the swamp milkweed we had a curiosity to know whether the bees carried away any pollen masses such as are found on common milkweeds. Stories have been told at different times of how bees have been killed by these membranous disks sticking to the legs; and the late Dr. Riley, of the Bureau of Entomology, once suggested that when bees become a nuisance to plant milkweed and thus kill them off. A very close examination of some of the bees working on this species (*Asclepias incarnata*) showed that there were some pollen appendages sticking to their legs; but they were by no means as large or as troublesome as those from the common milkweed, *Asclepias syriaca.* As these swamp milkweeds have been growing in this vicinity for years, and as Mr. Halter has been able to make a good increase year after year, the presumption is that this particular species is in nowise troublesome. The fact is, even the common milkweed pollen masses are not as destructive as generally claimed.

With the swamp-fever mania still clinging to us we had a curiosity to know whether we should find the same set of honey-plants in the swamp lands adjoining a little lake about five miles south of our home apiary at Medina. We drove out this morning, July 28, and were gratified to find many of the same species, and a little yard of bees belonging to Mr. S. A. Heavelin were storing honey in the supers, while our bees were gathering absolutely nothing. We did not, however, find very much of the swamp milkweed, but quantities and quantities of blue verbena, and acres of boneset; also a large amount of goldenrod and wild sunflower.

THE PRACTICAL SIDE OF MIGRATORY SWAMP BEEKEEPING.

The practical side of this whole proposition is that many of our readers, in this year of partial or complete failure of clover, will be able to find localities near them that will furnish plenty of fall pasturage. It would be well to make a trip through the country; and if you know of certain swamps within your reach you would do well to examine them thoroughly; and if you find any of the honey-plants we have named, and your bees are doing absolutely nothing, it may pay you well to move them, for there is nothing like a natural honey-flow to make bees breed up and fill up for winter. We expect to try out the proposition about Medina, and the results will be given in these columns.

We have not yet decided whether we shall go south for more bees. If we can breed them up in the fall within fifty miles of us, or within reach of an automobile truck, it will certainly be cheaper than paying freight of $1.00 a colony on bees from the south.

OUR APALACHICOLA PROPOSITION NOT A GREAT MONEY-MAKER.

In this connection, perhaps it is only fair to say that, after all the expense figures were in, our Apalachicola bees cost us much more than we had expected. Had it not been for our general sale of bees and queens we would have lost out on the proposition. It is only fair for us to say that, had we been running those bees for honey only, with the poor season we had locally, we should have been out of pocket. This is only another way of saying that the average man whose only source of income from the bees is the honey would probably lose out if he takes a carload south and then ships them back again after making increase. If one can make an increase in his own locality, he had better do it and thus save freight. The freight and risk are two big items that can not be eliminated.

We do not regret our Apalachicola experience, however, even if it was the kind that Josh Billings says "comes pretty hi." In any event it was worth all it cost for this journal alone. Probably no bee enterprise on a large scale has attracted wider attention than this did. We shall probably repeat the experiment this winter in a modified form.

Dr. C. C. Miller STRAY STRAWS **Marengo, Ill.**

P. J. Hoevel, p. 476, I fumigated many combs with bisulphide of carbon, used them afterward, and never saw a sign that it hurt them for brood or honey.

Rev. H. S. Fritsch's sermon, p. 561, is fine. But instead of quoting "deliver us from evil," why not "from the evil *one,*" as in the American Revision? Isn't that Medina congregation entitled to the best there is?

Were any of you veterans ever caught without your glasses when you wanted very much to read a little bit of fine print? Next time make a pinhole in the corner of a card or piece of paper, hold it very close to one eye, and it will help you out.

Joseph Gray says, take from a strong colony a comb with the queen, put it in the upper story over the excluder, leaving the remainder of the brood below, and a queen will be reared and mated below, and there will be no swarming. Will it work with others?

P. C. Chadwick, you think preference for a certain kind of honey is a matter of education rather than of taste, p. 491. Isn't it both? I produce little but white-clover honey, and my son was educated in that direction; yet he prefers dark fall honey to the best clover. My wife prefers clover, while one of her sisters, with the same education, thinks buckwheat far superior.

Adrian Getaz suggests that those who question my giving only 20 days for workers to develop should not overlook the fact that if they have known bees to take longer time the cases may have been exceptional. From various reasons bees may not always maintain the requisite 98 degrees in the cluster, and in any but very hot weather the outer part of the cluster must be cooler than the rest. I'm submitting the question again to the bees, and I wish others would.

E. H. Carr asks how European foul brood is first introduced into a hive if my theory be correct that it is continued by the nurses eating larvæ freshly diseased. This last, I *think*, is the usual way. In exceptional cases a spore may occasionally get into the baby's food some other way. When a diseased colony is robbed, the foul germs are in abundance, and it is nothing strange that some are carried by the robbers; and of these a single one happening in a baby's dinner is enough to start the whole business. Please remember, however, that my theory is only a theory, and I'm ready to abandon it whenever a better theory is offered. [It is quite certain that European foul brood is not carried in exactly the same way as American; but on the other hand it is clearly evident that it *may* originate in precisely the same manner. We shall be glad to get reports from those who have had experience with the European type, detailing how that disease is communicated.—Ed.]

Arthur C. Miller's splendid article, p. 495, and the editorial, p. 485, reminds me that imbedding *heated* wires originated "in this locality" with Miss Emma M. Wilson, and some may like the original plan. The foundation having been put into the wired frame, hold the frame, wired side down, flat over the blaze of a gasoline-stove. With one hand move the frame so as to let the blaze follow the line of the wire, while at the same time the tips of the fingers of the other hand are lightly pressed upon the foundation immediately over the blaze. The wax heats so slowly that it is little affected, while the wire heats so rapidly that it melts its way into the foundation, where it immediately cools as the frame moves along. The result is that wax closes up over the wire, just as if it had grown there, leaving a perfect job. Practice will teach how rapidly to move the frame, and how close to hold it to the blaze. [Miss Wilson was probably the first to use the plan that is both neat and quick; and we wonder that it has not been used more generally. There is nothing superior to it except electricity.—Ed.]

W. P. Fritz wants to know how I manage to have the fifth super on before July 1, and whether I use combs drawn last year. I use only a single section or bait with drawn comb, and that in the first super. But the fifth super on doesn't mean that five supers are filled, by any means. The supers are given one at a time as I think they may be needed; and by the time the fifth super is given it is something like this: Next to the hive is a super half full or less, then one a little more advanced, then two that are filled but not entirely sealed at the outside, then one entirely empty on top, or perhaps with just a start made in it. If the flow should suddenly stop, I'd be in a bad fix. But there is a wealth of clover bloom, and I'm not afraid to risk a good deal. All but the top super are well filled with bees; and when I show my confidence in the bees by giving them big room they seldom betray that confidence. The wonder is that they have done as well as they have, considering that there has been so much cold weather, and it's been wet, wet, wet. [It has been hot and dry, dry, dry here.—Ed.]

J. L. Byer, NOTES FROM CANADA Mt. Joy, Ont.

Good advice by friend Holtermann on p. 467, June 15, regarding control of swarming at out-apiaries, and I would urge beginners to take his methods if they wish to be *absolutely sure* as to conditions of the colonies during honey-flow. It is a tremendous amount of work examining *every colony every week,* as he advises; but as he has men *to do the work* and I rough it alone mostly, needless to explain why we differ a bit on this subject. But I just wonder if he has examined, or rather had his helpers examine every colony each week during the last month. For once at least I venture to say he has not gone to all this trouble. Personally I feel sorry to say that we have not examined a single colony to see if they were thinking of swarming. A non-swarming strain surely—when not a bit of nectar is coming in.

* * *

Just one month ago—June 11—I wrote that prospects were not very good for clover honey in Ontario this year, and stated that a light crop at best was all we could reasonably expect. Instead of a light crop, we have in our locality a total failure, and about all reports I have received up to date from other parts of the Province tell the same story. In the July 1st issue I stated that much old honey was in the brood-nests as well as quite a lot of fresh nectar gathered from maples, etc., and I was rather afraid at the time that some of this darker honey would not be turned into bees and that it would go into the supers. Needless worry in this case, as many hives are at this date, July 11th, lighter than they were a month ago. Continued cool weather and drouth explains this unusual condition, and even if we would have had much more clover than we had, I doubt if much honey would have been stored owing to unfavorable weather conditions. In localities where they have basswood, some honey may yet be gathered from that source, but as basswood is now scarce in most places and an uncertain yielder at best, it looks as though Ontario will have practically no white honey this year. There is some buckwheat around us, and naturally we are hoping for at least enough honey from this source later on to fit the bees for winter.

While it is of no use to borrow trouble for next year, it looks at this date as though 1915 will be another year of failure in so far as the clover is concerned, as the long-continued drouth has given the freshly seeded alsike a great setback, and what plants are left are small. Of course this condition may be only local, as many localities may have had showers that did not come our way.

* * *

The editor's write-up of the district around Haileybury, Ont., page 446, June 15, was read with interest by myself, as I have been through the country and noted its honey-producing possibilities, writing up my impressions in the *Canadian Bee Journal* some few years ago. I surely believe that there are great possibilities in that country, but it is good to remember that, generally speaking, the farther north one goes, the more uncertain are the seasons in so far as late frosts and very cool weather are concerned, during the months of April and June. Then again frosts often come quite early in the late summer and fall, as on one occasion when visiting my sister at New Liskeard, a town just a few miles north of Haileybury, all tender vegetation was frozen on Aug. 15th if I remember correctly. However, taking one year with another I suspect they are as sure of a crop as we are further south. At any rate, the district in question has always had a fascination for me ever since I visited the country. As to wintering, I would not fear it in the least, as a frost-proof *dry* cellar will winter the bees all right. At Milberta, above Haileybury, I knew of one lot that wintered well outdoors, but the bees were covered over with snow quite early in fall and remained so till spring. As the Editor says, the winters are very cold and the summer season short, but my sister who lived there for some time (her husband ran a large market garden) found the climate not at all disagreeable. When up there one year in August, I was looking at a few colonies owned by the postmaster in Haileybury, and at that time the bees were building beautiful sections of water-white honey. Outside of the town there were hundreds of acres of willowherb, so there was no doubt that the honey was coming from that source. But, Mr. Editor, your caption " cold northwest " is a bit misleading, as Haileybury is straight north from Toronto somewhere about 400 miles or more, and, if I mistake not, Toronto is some east of Medina. But as the conditions will be pretty much the same for 500 miles west and many miles east of Haileybury, perhaps after all you may not be so far out of the way

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

Occasionally we find a colony that forges ahead and stores much more honey than the others, though having only an equal show with the others.

* * *

A part of my sage range is on red soil, part on sandy loam, and a part on white clay; but the honey from it all was white. We had several different kinds of climate during the season, but the honey remained the same in color.

* * *

Little is heard at the present time of black brood, but it should not be forgotten. Another season of dearth will bring it forward again. Better get in some good Italian stock while the time is ripe. It may save much loss another year.

* * *

Some peculiar conditions are noted in the condition of bees in the San Bernardino Valley. Many of the apiaries along the south slope of the valley that produced quite a few cases of honey last season are this year far behind those on the south of the valley that did not produce a pound of surplus last year.

* * *

There are many times during the year when I am working my way up the steep rough road to my bee-ranch that I almost make up my mind to move down further in the valley; yet when I get a good crop I am ready to let them remain where they are. With some labor I can keep the roads in repair; but to find a location such as I have is not an easy task.

* * *

I have some hive-lids, made five years ago, of pulp board (commonly called heavy pasteboard), such as is used to make heavy boxes. The board is about ⅛ inch thick, and is nailed to the lid-frame after having been treated with crude oil—two layers of board to each lid. It makes a cheap, light, durable lid; but treating the board with crude oil does not appeal to me. It's a nasty job.

* * *

The longer we live the more we learn, if we don't think we know it all. My helper, Mr. Byron Crawford, fixed up a robber-trap when the robbers got to bothering him about his work, and made increase with them. After his trap got pretty well filled he set it to one side until the bees rather lost interest in home, then he gave them a frame of brood. Strange to say, they took kindly to the joke, and went to work. To be sure, some of them found their way back to their own hives, but a sufficient number stayed to start a good nucleus.

* * *

A western beekeeper shipped two cases of fancy water-white sage to an eastern customer. Shortly it came back with the information that if the customer wanted honey made from granulated sugar he could make it himself. This customer is not the only one in the world who has not seen water-white honey. It is a fact that the public prefers honey with color to the whitest, for they are better acquainted with it.

* * *

A gentleman from the Hawaiian Islands conceived the idea of growing sweet lemons by selecting a certain soil rich with elements that go to make fruit sweet. Just how he is figuring this out I will not use space to tell, but his theory is correct. I fear, however, he will come out like a neighbor of my father's who once had a theory for raising sweet potatoes. When the season was over he said the theory was correct, but the potatoes were not worth digging. We have trees in California that bear both sweet oranges and *sour* lemons.

* * *

Mr. E. E. Lawrence, a noted queen-breeder formerly of Doniphan, Mo., has come to the golden West to spend the remainder of his years. He has purchased property in this city, and expects to continue the business of breeding queens provided he can find a location where he can secure pure matings, and one that at the same time is not too far from his home. I feel particularly fortunate in having Mr. Lawrence only a few blocks from my home, as he is a man well versed in the art of beekeeping, and exchange of thoughts with such men is beneficial. A matter of remark in his coming is the fact that he came overland in a Ford automobile with his wife, daughter, and son-in-law, camping outfit, provisions, etc., all of which made a combined weight of 1300 pounds. The party were 26 days running time coming through.

Dr. M. M. Brashaw, of Roswell, N. M., has also moved to these parts, having purchased an apiary in the vicinity of Loma Linda. Dr. Brashaw is connected with the Loma Linda Sanitarium, his son having principal charge of the bee interests.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.

BEEKEEPING IN BOULDER.

There are quite a number of the residents of Boulder who are keeping bees in the city, which, however, is a small city—hardly metropolitan. The bees may fly to the foothill ravines and canyons where hawthorn, thimbleberry, chokecherry, and scores of other flowers furnish nectar early in the season. Then close up to the city limits are alfalfa-fields that often yield nectar. The bees in the city, however, *upon the average* do not yield more than fifty per cent of the amount secured from colonies in apiaries located in the alfalfa districts further from the city.

* * *

THE LOCAL HONEY MARKET.

This is the first year for us here in Boulder when the old comb honey on hand has interfered with the sale of the new. A good many grocers will not buy the new until they have cleaned up on the old. The new honey generally brings $3.50 to $4.00 a case for the first few cases, but this year $3.25 is the most that has been paid in the local market so far as I know. The demand for honey from a distance has been better than for several years. The excellent crops in the dry-land country in eastern Colorado, western Nebraska, and western Kansas, is going to make a large market for a good proportion of our production.

* * *

WORKING UP A MARKET.

The letter of Ray Mittower to Dr. Miller, page 373, May 15, is as interesting as it is important. Located as Mr. Mittower is, he is interested to know whether he can profitably produce comb honey and make a good living. Perhaps he has seen comb honey literally dumped upon his market, and the price shattered or lowered to where the profit is microscopical. The centers of large production are rapidly increasing their shipments, and the marketing and distributing of these increasing crops is going to require work. But if I were in Mr. Mittower's place I would not fear outside honey greatly. I would build up my trade with local dealers and cater to the fancy trade, and I feel sure that I could always dispose of my product at a good figure. I would not put my honey in the hands of dealers any more than I could help, but would try to sell direct to the large retail grocers.

The commercial producers will eventually be forced to adopt methods similar to the California Fruit-growers' Exchange, and then every honey-producer who wants to market his honey with the least effort will doubtless find it pays to deal with the organization. There always will be a profit, doubtless, for the man who has the time and inclination to work his own local trade; and if it is large enough to take all he can produce he is fortunate in comparison to the producers who are long distances from the markets. I think that the young man has as good chances now as ever to do well with bees, but, of course, he will have to keep up with the times in the marketing end as well as in the production end.

* * *

MARKETING HONEY.

James H. Collins has a very interesting article on selling honey in the June 13th issue of the *Country Gentleman*. This is one of his "Selling Service" articles that are running in that paper. Many of his statements have to be taken very generally, but the suggestions are good. It would pay many a beekeeper to send for a copy through the local newsdealer if a copy cannot be found. He says that the beekeepers have worked in too general a way. He thinks general publicity has failed, and that what is needed is for every beeman to use more printers' ink in the way of circulars and honey leaflets, advertising honey locally and building a trade close at home.

Mr. Collins recognizes that the great difficulty is that, when the individual beekeeper has made his rounds among his customers and disposed of his crop, the customer does not see him again till next year; but Mr. Collins does not give a remedy for this condition, except to suggest that the beekeeper should work more intensively—that is, work a smaller territory, and it is inferred that he would then have to spend the whole year selling his crop; while, by spreading out, the beeman can dispose of his crop in a few weeks. When the beeman can dispose of his crop in a short time it is not likely that he will adopt the slower method, even though the condition of the public thought regarding honey as a staple product instead of a luxury might be established. We all look pretty close to our own noses, and the betterment of the general honey market cannot hope for much help from the beeman working individually. If the price could be raised fifty per cent by holding the crop throughout the year, the proposition would be a sound one, and the beemen would not be slow to adopt it.

The recommendation to use glass more instead of tin is a good one so far as the retail market is concerned.

The suggestions on selling through grocers are good; and if beekeepers would work through them along the lines outlined by Mr. Collins there would be much more honey eaten.

The trouble is that the average busy beekeeper has not the time to work up a selling plan like the one suggested, and not one in a hundred has the ability or business acumen.

The honey facts for advertising leaflets arranged by Mr. Collins should be made use of by a large number of beekeepers. They can be changed and added to to fit local conditions.

* * *

Those notes "not for discount" will hardly pass as negotiable with some of us. Of course, we know what Arthur intends. All he wishes is to set some of us slow thinkers to speeding up a bit, and so he says some foolish things in a very interesting way. And for this we thank him very much. For instance, just look here and see what he says: "Better err on the side of trying a lot of fool things than miss one good one because you know it won't work." Then a little further on he reads the riot act on the editors of the bee journals, presumably for publishing the fool ideas of Miller *et al.*

He says, "Stimulative feeding for spring should always be done in the fall. Give them all you think they will need, then double it, and then half as much again for good measure." Arthur has given this instruction for years, and we have not all learned it yet, and we shall not all learn it for a good while, for "it ain't so" *everywhere.* In the first place, if you are a practical beekeeper, and feed all you think a colony needs, you can not double it nor add half again for good measure. You can tell that to your back-lot amateurs in Rhode Island.

But that question regarding the number of queens, cost, etc., I cannot fully answer. Mr. Nichols probably raised 150 queens, and used perhaps half a dozen colonies. He would have a hard time telling how much they cost, for the time was the principal element. Yes, I shall go down there in the East some time, and learn how you raise 400 queens in one hive and get a crop of honey from it too. There are lots of things we can learn from each other.

[This was referred to Mr. Miller, who replies:]

The unexpected has happened! Wes. Foster has sat up and taken notice. He has discovered Rhode Island and some other things—notably, that he makes mistakes (GLEANINGS, page 166). Glad to have his company. As to feeding, the advice was for ordinary beekeepers, not for *extraordinary* ones, for the kind who think a gallon of half-and-half syrup "an awful lot" for one colony of bees. "Spring stimulating *in the fall*" is backed by some excellent authorities, and I do not feel a bit lonesome.

Now, Wesley, if you will come east I'll show you a few new(?) wrinkles and lots of revamped old ones which pay in my New York and Rhode Island yards. Also I'll introduce you to a Rhode Island "clambake," and you will learn of a new joy.

Those who do not know how to take my notes should not.—*Arthur C. Miller.*

* * *

MOVING BEES BY AUTO TRUCK.

I have had my fill of moving bees this year. I moved 200 colonies in close to the foothills for the early mountain bloom; made 150 colonies of increase, and moved the 350 colonies back to the country about June 15, together with about 100 colonies that were bought, that were located in Boulder. The bees were all moved by auto, nearly three hundred being moved at three loads with a large two-ton White truck. We had more than two tons on the truck, however. Screens over the top of the hives were used, and many of them had supers on which made them heavy and bulky. The time taken to load one hundred colonies on the truck was about two hours. One hour and a half was taken to run fourteen miles, and one hour was taken to unload and open the entrances.

Two colonies (the best ones) were smothered on the load that we hauled in the day time. The other two large loads we hauled at night with the best of success.

We made fine time in hauling twenty colonies at a load on my Reo auto. We loaded in thirty minutes, drove six miles, unloaded, and were back loading up a second load in one hour. We hauled two loads in this way before breakfast. A few days later, however, we broke the rear axle with twenty colonies of bees on the auto when going about fifteen miles an hour, and we were nine miles from home. Fortunately we had stopped and retied the load more securely, or we would have dumped the load into the road. As it was, not a hive moved from its position.

It is important in preparing bees for moving in the summer to give all strong colonies clustering space in empty supers above the combs.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

QUESTIONS ANSWERED.

"Should a beekeeper make his own hives?"

Quite a little depends on the man, and more still on the man's pocket-book. If the man has plenty of money, and can see no fun in making hives, then it is well for him to buy his material in the flat, putting it together and nailing it up. This any man or woman should be able to do, the accomplishment of which should give even a millionaire pleasure. But with the one who has a family to support, and hardly knows how to make both ends meet, the winter evenings and stormy days can be turned into both pleasure and profit by making what hives are needed the coming season, excepting frame stuff and section material. These parts can hardly be made unless the apiarist has motor power and sawing-machines to do it with. But a fairly good workman with the necessary tools should be able to make all the other parts needed after starting, in any well-regulated apiary.

But if the man prefers to cut cordwood at 75 cents a cord to making hives, as a man once told me he did, then let him cut the wood, by all means.

"Why do bees tear down and rebuild comb? My bees have been doing this during May and the first half of June. A beekeeper living near me said that the bees did this to remove the cocoons in very old combs so that the cells would not be so diminished in size as to cause the workers cradled in them to emerge as dwarfs."

This beekeeper has mentioned something new to me, and I mistrust that his credited foresight will be new to most of the readers of Gleanings. I am hardly ready to accept his conclusions; for were he right I have combs in my apiary which should have been torn down and renewed long years ago. Forty years ago I purchased some old box hives said to have had bees in them for twenty-five years, and transferred the combs from those hives into Langstroth frames, and only yesterday I ran across one of those frames having this 65-year-old comb in it, and, strange to say, I could not discover that the bees emerging from those cells were any smaller than those emerging from a comb which was drawn from foundation during the season of 1912.

I have frequently seen combs torn down in the manner mentioned, but it is always, so far as I can see, where the comb has been injured by mold or spoiled pollen, or where the pollen has hardened. Then, once or twice in my beekeeping lifetime I have known bees, where I had excluded *all* drone comb, to tear down the lower corners in a frame or two, septum and all, and build therein drone comb; and I think I have said in print that I have known bees to tear down worker comb where they had naught else, in order to build drone, so that drones might be reared preparatory to swarming.

"How about stimulative feeding? Is it profitable or not? Having a talk with a beekeeper a few days ago he told me what a tedious, troublesome job it was, and afterward took the trouble to describe and recommend what seemed to me a most troublesome, dangerous, and ineffectual way of doing it—namely, by feeding in the open air, either by putting out syrup or extracted honey with floats on it, or by hanging out in the trees partly filled combs of honey."

The plan given you was one of the worst ever put before the public, for two reasons: First, such a mode of feeding incites robbing. At no time should sweets of any kind be left exposed to the bees, and especially in any time of scarcity of nectar from the fields. Nothing so incites robbing as do exposed sweets when the flowers are yielding no nectar. In my early apicultural life, two frames having honey were left carelessly standing outside a hive when a call for help from a neighbor took me away for two hours. This caused the cleaning-out of four colonies, and demoralized the whole apiary for days thereafter, till the nectar secretion began again. This one lesson was enough for me, and has been profited by ever since.

Second, by such a method of feeding, those colonies that need the least will get the most of the feed; and those that need the most get little benefit. Of course, there is such a thing as a colony strong in brood and bees being short of honey; but the rule is that the *weakling* will be both short in bees and honey, and get very little of the feed given in the open air. So if stimulative feeding is resorted to, it should be done in the hive, with an eye to the wants of each colony.

But I am satisfied that stimulative feeding does not pay. Do not misunderstand me. I do not say that it is of no benefit, but that *it does not pay.* Each colony ought to have plenty of stores; and if it has, feeding will add but little to the amount of brood reared, and may encumber the brood-chamber to the detriment of maximum numbers at time of harvest.

GENERAL CORRESPONDENCE

A Symposium of Crop Reports from Different Parts of America

COLORADO HONEY-CROP CONDITIONS; FAIR CROP IF PRESENT FAVORABLE OUTLOOK CONTINUES

BY WESLEY FOSTER

Allowing for a wide margin, I should say that there are 3000 more colonies of bees in Boulder County than in 1913. The indications since early in the spring have been favorable, and the beemen have made increase generously. The increase made by the specialists living in Boulder is about 1000. This heavy increase will affect the honey crop materially, but still we should have honey to ship. The year 1913 was the best season for Boulder County for a number of years, and the indications are still better for 1914, except for several things. We cannot hope for the late flow of honey that we had last year, and we have had several very severe hailstorms. There is more overstocking than last year, and we cannot tell until the last of August whether more shipments will be made this year than last. The indications are that there will be more. The season is two weeks earlier, and there are more colonies of bees. We think that conditions are favorable if we get a case or two of comb honey by the 4th of July, and on the 8th I took off 17 cases. Mr. Collins, of this city, took off five cases of comb honey on the 1st of July. Sweet clover has begun yielding nectar, and the second crop of alfalfa is just coming in bloom (July 9). There has been little work done in the comb-honey supers during the past week; but super work should pick up now. Nearly all the colonies in this county are operated for comb honey. There were about 6000 colonies in the hands of specialists last year, and about 8000 this year. The crop last year was two to three cases of comb honey to the hive; but what it will be this year will have to be guessed at until about the last of August.

The comb-honey shipments totaled about twelve cars last year. Some quite large local shipments were made, and the home consumption is considerable.

The frequent rains have kept the horsemint on the dry mesas blooming almost continuously; and while it is drying up now, the nectar secured has been quite gratifying. Our surplus, however, is practically all alfalfa and sweet clover. The alfalfa hay crop has been heavy, which has retarded the cutting by the farmers, and now the grain must be cut so that there should be little complaint on the beekeepers' part, for much alfalfa will stand in bloom some time. If we could have one good general rain in July, with hot weather following, and another good rain early in August it would help wonderfully. Cool weather is our undoing, and we should prefer it dry and hot rather than wet and cool.

We still are 3½ inches above normal this year in rainfall, though the excess for July so far is negligible—only one-tenth of an inch. There is plenty of irrigation water, however, and growing weather is good. The agricultural outlook as given in Farmers' Bulletin No. 604, issued June 23, gives conditions in the West very well, as they apply to Boulder County, and presumably they are as correct for the rest of the western country as they are for this part of it.

> The Rocky Mountain States have been blessed with an unusual amount of moisture as a result of heavy snows and late winter rains. The weather is frequently mentioned as ideal. The irrigated sections have ample water supplies impounded, and the areas devoted to dry-land crops have exceptional supplies of ground moisture. The growing weather has been good, particularly for grains. . . . . The hay crop throughout this grand division is reported as extra good, this applying to both the seeded forage crops—clover and alfalfa—and to the native grasses on the open range.

Take it on the whole, Boulder County so far is blessed with good prospects for a crop of comb honey as good in quality as last year. I think this county is in better shape for a crop than the average honey-producing county in Colorado this year.

COLORADO AND INTER-MOUNTAIN PROSPECTS.

I want to give the reports of honey prospects in Colorado, New Mexico, Idaho, and Wyoming as given in more than twenty letters from beekeepers in those States. They are intended only as showing indications.

May 13 Mr. C. Stimson, of Holly, in the lower Arkansas Valley in Colorado, wrote, "Weather has been favorable all spring; big rain this spring, and weather fine since. A few flakes of snow fell yesterday. A terrific hailstorm was reported from the west part of Prowers County the night before, and our cool weather is doubtless from that."

This hailstorm referred to was quite extensive, extending in a more or less broken strip from Fowler, Otero County, through Bent County, and into the western part of Prowers County.

May 25 Mr. D. C. Polhemus, of Lamar, Prowers County, Colorado, wrote, "We have had two quite severe hailstorms that have done a great deal of damage to alfalfa. Most farmers cut it off, although there was not enough of it to rake up. Bees are building up well, and we have commenced to put supers on the strongest colonies." The beekeepers of Prowers County produce extracted honey largely. June 5 Mr. Polhemus wrote, " Bees are working well now. We have got supers on about half of our colonies, and are putting more on as fast as we can."

June 10 Mr. Charles Cheek, of Las Animas, wrote: " The bees have been gathering honey for about ten days, and have done good work for that length of time." Las Animas is the county-seat of Bent County, right west of Prowers County, in the Arkansas Valley. May 24 Mr. F. W. Brainard, of Hill City, New Mexico, wrote: " I have 300 colonies of bees, and am putting on supers. Bees are working finely at present, and I hope to be taking off honey soon. They have the alfalfa (first cutting) nearly all down, but the mesquite and other flowers are blooming quite freely."

May 29 Mr. J. H. Stoneman, Blackfoot, Idaho, wrote: " Prospects look good for a crop here this season. Bees have wintered well, and came through strong. We can make lots of increase."

June 3 Mr. W. V. Ranney, of Lander, Wyoming, wrote: " Prospects for honey are fine up here at present." On June 27 he wrote: " Two heavy frosts in June have lessened our honey prospects here considerably."

May 29 Mr. J. H. Gardner wrote from Garfield County, on the western slope in Colorado: " Bees are not building up here at Grand Valley as well as they are in the upper part of the country around Rifle and Silt. They are short of stores here, and need feeding. We have no dandelion here, but have some sainfoin. The weather has been cool and windy." June 28 Mr. Gardner wrote again: " The weather is hot here, but the bees are not doing much. Some of them are starting a little in the supers. At Rifle it is not much better. On Divide Creek the bees are booming, but near the river they are not doing much."

June 15 Mr. Robert E. Foster wrote me from Rifle, Colorado: " We have just commenced to super our bees. We had a bad spell of weather early in June, and had to feed very heavy. The small bridge on the river washed out so we could not get to our Burnett yard for almost a week later than we should, and we lost lots of bees, though no full colonies were lost. Some of the colonies killed all their brood, and many bees were dead when I fed them. There was plenty of nectar, but the weather was so cold and wet the bees could not fly."

May 17 George D. Taylor, Cortez, Colo., wrote from the Montezuma Valley: " Prospects are good for a honey crop here this year. We have just had a soaking rain."

June 19 Mr. E. D. Nichols, of Montrose, wrote me: "The army-worms are destroying whole fields of alfalfa and spuds; and if the pests continue there will be no honey crop here this year. Things are not looking as bright in the Uncompahgre Valley as we should like; but as it is early yet we still have hopes for a flow later in the season. This seems to be somewhat of an off season for beemen. Two beemen have lost quite heavily from the spraying. They think it was not from the trees but from the red clover that the orchards are seeded with. We had quite a nice flow here on June 3 that was cut short by stormy bad weather that lasted until about June 15, and all that time I fed each day and stopped feeding the 14th, and things were going fine until the 18th when the bees began robbing again; so you see we had a very short honey-flow. Our only hope here is for a late flow."

June 30 Mr. Elmer Kennedy, of Whitewater, Mesa County, Colorado, near Grand Junction, wrote me: "Every thing looks well here for a honey crop. The bees are working well on sweet clover now."

June 23 Gale H. Patterson, of Cedaredge, Delta County, Colorado, says in a letter: " Colonies of bees are unusually strong at this time of year, which was quite contrary to expectations, as the wet and cloudy weather retarded the blooming of pollen and honey-producing plants until late in the spring. Wild flowers, however, came out quickly in great profusion after the rains. Alfalfa did not bloom until almost time for cutting, and the bees had little chance for working on it."

The army-worm, or measuring-worm, is doing considerable damage. It is predicted that they will ruin the second crop of alfalfa. Their work on sweet clover is especially noticeable. They eat the tender leaves near the top of the plants, but so far as can be seen they do not attack the blossom buds, none of which have opened yet. Much damage has been done to bees by orchard spraying. Some large beeyards have been moved out near the foot-hills away from the orchards to prevent the loss.

June 14 Mr. W. A. Cheek, of Merino, Logan County, Colorado, in the South Platte Valley, says: "I do not think we shall have much honey here to market this year. Bees are in fine condition; but the high water has killed out the sweet clover on the river bottom, and the farmers are cutting the alfalfa before it blossoms. The first crop is mostly up."

June 1 Mr. S. C. Wood, of Rocky Ford, wrote: "We are having very bad honey weather. A severe hailstorm struck in on the river below Fowler, reaching to La Junta, destroying a good deal of our vine crops."

June 3 Mr. W. C. Evans, Fort Collins, Colorado, wrote: "Prospects for honey in the north end of Larimer County are not good. Best that we can hope for is probably half a crop." June 30 Mr. Evans wrote that bees in Larimer County were barely more than making a living.

July 6 Pres. N. L. Henthorne, of The Colorado State Beekeepers' Association, wrote me from Platteville, Weld County, that bees were doing nothing there. "An east wind is blowing, and no honey to speak of."

June 10 Mr. Wm. Harkleroad wrote me from Grand Junction that bees were dying by the quart in some apiaries, presumably from spray poisoning.

June 2 Mr. George D. Taylor, Cortez, Colorado (Montezuma Valley), said that bees were doing finely.

From all these reports it may be gathered that the crop of honey will be seriously lessened in some districts, local in extent. Taking Colorado as a whole, there should be a fair crop of honey if present favorable conditions prevail. There will likely be more hailstorms, ravages of the army-worm, bees killed by spray poisoning, etc., but the honey crop should be considerable, and it gives every promise of being of high quality.

I have not mentioned the poisoning of bees by smelter smoke near Denver because that was reported in GLEANINGS for June 15.

The poor prospects in Larimer County, or at least parts of it, are due to a very destructive hailstorm several weeks ago.

Boulder, Colo.

ONTARIO CROP WILL AVERAGE ABOUT 30 POUNDS PER COLONY

BY R. F. HOLTERMANN

The bees throughout southwestern Ontario went into winter quarters last year (1913) in about as fine condition as possible. There were plenty of young bees. Owing to the prolonged flow from red clover they had an unusual amount of good stores, and every thing seemed favorable. The early winter was mild, followed by a fairly severe season of weather; but the bees came through the winter in excellent condition, and I had a large percentage of colonies covering fairly well twelve Langstroth frames.

As to clover, the old fields had been pretty well winter-killed; but the young clover was in good condition, and we had a fairly plentiful amount. Eastern Ontario, owing to the dry summer of 1913, was in none too good condition, yet a fairly wet fall had brought white clover on nicely. The honey-producing section of Quebec province was also well supplied with clover.

This was the first spring for many years in which I did no stimulative feeding. We had so much honey in the hives that, by changing a few combs about, all we needed to do was to bruise cappings on honey already in the hive.

Notes in my diary show that bees were working well on willow and soft maple April 18; drones were seen (I do not know how long they had been in the hives) April 27. Queen-clipping began on May 2; supering began May 7, and a very large percentage of the bees were supered before clover opened. Dandelion came into bloom May 6; golden willow and hard maple were in bloom May 9; wild cherry, May 10; fruit bloom, cherry and plum, opened May 17. We began unpacking bees May 19. Apple bloom opened May 21 (it is usually over by May 24). The first clover honey was noticed in the combs June 6.

So far every thing was fairly well, only we had had a wet cold spring in this section, with an unusual number of frosts; and such a spring is sometimes followed by a dry, cold, early summer. The honey record will show the yields. They speak plainly. The day the colony gained 14 lbs. it really gained 17 lbs. from 8 A. M. (before any bees were out) until 8 P. M.

The yield that day shows that there were enough blossoms to give honey, that the soil conditions were right, and all that was needed was a certain atmospheric condition. There were three supers put on the scale at the time of first weighing—two above the quilt, one below. The object of this was not to disturb the gross weight of supers required to be added. The hive record is as follows:

June 11	129 lbs.	June 25	179 lbs.
June 12	129 lbs.	June 26	183 lbs.
June 13	132 lbs.	June 27	180 lbs.
June 14	137 lbs.	June 28	183 lbs.
June 15	138 lbs.	June 29	180 lbs.
June 16	139 lbs.	June 30	184 lbs.
June 17	143 lbs.	July 1	182 lbs.
June 18	148 lbs.	July 2	180 lbs.
June 19	145 lbs.	July 3	182 lbs.
June 20	146 lbs.	July 4	181 lbs.
June 21	147 lbs.	July 5	181½ lbs.
June 22	158 lbs.	July 6	180½ lbs.
June 23	172 lbs.	July 7	180 lbs.
June 24	174 lbs.	July 8	180½ lbs.
July 9	180 lbs.		

It will be seen that on June 23 the colony gained 14 lbs. in 24 hours, and that on June 27 the colony weighed exactly the same as last night, July 9. Our clover is over; basswood, which is very limited, will open in a few days, and on an average I do not believe I have a surplus of 30 lbs. to the colony, and covering a large area of the Province reports are the same.

Quebec is having a fairly good honey-flow, and eastern Ontario is doing much better than we are. A. A. Qurea, Renfrew, reports after a dry spell a heavy rain followed by clover and raspberry honey, and in one week ten-frame extracting supers filled.

It is, perhaps, just as well we have little honey. Even with a very light crop in eastern Ontario and the report of a light crop in Quebec, a great deal of the honey of 1913 is still in the beekeepers' and dealers' hands; and if we had even an average crop we should not know what to do with it.

Brantford, Canada.

CENTRAL NEW YORK; ONE SUPER OF LIGHT HONEY PER COLONY EXPECTED

BY S. D. HOUSE

My report of the honey-crop conditions in central New York includes about 6000 colonies. Investigation shows that bees wintered well in this section. Although late in starting their brood-rearing in the spring, they bred up fast and were very strong when willow and fruit bloom opened about May 15. During fruit bloom they gathered about 25 lbs. per colony, storing it in extracting-combs. This flow lasted until about May 25, very warm weather prevailing up to May 28, then turning cool, with no honey coming in. The bees gathered an extra amount of pollen, filling the combs with it, which reduced the brood-rearing.

From May 25 to June 23 the bees consumed the greater part of the fruit-bloom honey, as there was nothing in bloom that yielded nectar, although alsike clover opened June 12. Examining large fields of it, I could not find a bee on it.

June 23 sumac opened, and yielded some honey for four or five days, but not fast enough to start drawing combs in sections. Many colonies prepared to swarm. From June 28 to July 7 there was practically no honey gathered. The few new colonies hived had to be fed to prevent starvation.

July 8 basswood opened, and is yielding some honey. About half the basswood-trees are budded; and if weather conditions are favorable for the secretion of nectar we might look for about a third of a normal crop of white honey, which will be from basswood and sweet clover. The small white clover was conspicuous by its absence; but copious rains during the season have started a new growth which is showing some bloom, and it is yet to be seen whether it will yield nectar or not.

To-day, July 10, basswood is yielding fairly well. Bees have started their sections, and I shall expect at least one super per colony.

Information from many parts of the State coming in this morning shows that there was no surplus honey gathered up to July 7. The acreage of buckwheat will be about normal in this section of the State, owing to the destruction of cabbage-plants by an insect working in the plant-bed, and the fact that the fields were in good condition for plowing and sowing, which encourages the farmer to grow the crop. This leaves us some hopes that we may get some dark honey.

Camillus, N. Y.

THE SAGE BELT OF CALIFORNIA; THE CROP GOOD AND BAD

BY P. C. CHADWICK

This report is compiled from correspondence, conversation, and from my own personal observation. To my knowledge there has never been a season when there was so much variation in conditions to take into consideration. Heretofore we either had a crop, a fraction of a crop generally speaking, or no crop. This season some beekeepers have a fair crop while others have no crop.

The mortality since June, 1912, in the sage belt, must figure as an important feature in this report, for no increase of importance has been possible, while the decrease has been steady since that date.

In the orange belt, conditions have been more favorable; and where the two converge, conditions are also better.

At the beginning of the honey season San Bernardino County stood nearly one half below her normal number of colonies, notwithstanding the vast amount of orange-groves. Los Angeles, Ventura, Santa Barbara, San Luis Obispo, Orange, and Riverside counties lost in proportion, while San Diego, from all reports, lost 75 per cent during that time. Allowing the best possible figures we cannot have entered the present season with more than 50 per cent of our normal number of colonies in the sage belt. Of these some apiaries have exceeded a figure I shall use as a normal one per colony for a good sage year—one case of 120 pounds extracted per colony, which is low indeed, it being generally conceded that 200 pounds would be nearer correct. By these figures we see our crop cut in halves at the start. To illustrate: In Redlands district there has been produced, approximately, 900 cases to July 9, from a total of 2000 colonies, spring count, giving an average of less than 60 pounds per colony. In San Diego County, our greatest producer, there will be several carloads of honey; but the vast amount produced there in past years as favorable as this year will not be there this year.

On the other hand, there will be more honey gathered in many localities than has been gathered to date, and I should not be surprised to see the total output for the sage belt increased by one-half, with light amber and amber grades from wild buckwheat and many lesser plants that give up their nectar freely after a winter of excessive rainfall. All told, however, we cannot by any hook or crook produce half a normal crop for a sage-yielding season. No comb honey of consequence has been produced in the sage belt.

Redlands, Cal.

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REPORT OF THE HONEY CROP IN VERMONT, NORTHERN MASSACHUSETTS, AND NORTHEASTERN NEW YORK

Fifteen Pounds Per Colony a Good Estimate

BY J. E. CRANE

The season has been somewhat peculiar. April was unusually cold and wet, leaving bees quite backward the first of May. May was dry, and the last half of the month warmer than usual. As a result, bees had a good time on fruit bloom and dandelions, so that all fair colonies were able to fill their hives with honey and brood, and in some yards considerable honey was extracted from the brood-chambers, or heavy combs removed and replaced by empty ones. The dry weather continued nearly through June. White clover winter-killed badly in some places, and the dry weather prevented what was left from developing, and kept alsike small and short, with a small amount of bloom. In most places where there was clover bloom it seemed too dry for it to yield much honey.

The vetch that has come in many meadows has seemed to yield honey freely. This, with the hives well filled with early honey, and what little they could get from other sources, has set bees to swarming at an unusual rate in many places, with the result that there has been but little honey stored in supers up to the second week in July. Recent rains have freshened up the clover, and it seems now to be yielding some honey.

Blue thistle has come in in some localities, and is yielding well; but the yards within reach of it are not many.

The basswood that formerly gave us rich harvests has been greatly reduced by the lumbermen; and in many places where basswood remains, the forest-worms have completely defoliated them, so we have little to expect from this source.

It is yet rather early to tell what the harvest will be; but present indications are that it will be much below the average; in fact, it does not look now as though there would be more than a third of an average crop of white honey in Vermont, northeastern New York, and northern Massachusetts that this report covers. There will be isolated localities where there has been more rain, or the soil is more retentive of moisture, where there will be fair crops. Recent rains may bring more clover than we now expect. Very little extracted honey is produced in this section. This report is estimated to cover some ten to fifteen thousand colonies.

Recent advices would indicate that conditions reported above would apply to a large part of New England. I believe 15 lbs. per colony a large estimate at this time.

Middlebury, Vt.

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A REPORT OF THE HONEY CROP IN THE SOUTHEAST AS FAR AS THE SEASON HAS PROGRESSED

BY J. J. WILDER

The posted beekeeper knows that at this season of the year the beekeepers in the great Southeast are not ready to make final reports on the honey crops; for as a whole the harvest is not more than half over. The beekeepers in the clover sections are not fully ready. The beekeepers in the mangrove section of Florida are not ready. The beekeepers in the Blue Ridge Mountains and the surrounding country are not ready. In fact, only a few are ready, the main flow being over with them, for the flow from cotton has not yet come on, which is our greatest honey-plant, and this gives a good yield over the greatest portion of our country. The flow from the partridge pea in middle Florida has not come on yet. In many sections there is a good fall flow from asters, goldenrod, summer-farewell, etc. This is all excluded from our report, which makes it a meager one, including only the spring flow, which is very light in some sections, owing to the scarcity of honey-plants.

For this spring-crop report I am much indebted to beekeepers in almost all sections, for they have taken the time to write me and keep me posted as to what bees were doing in their vicinity. To these I extend many thanks. These reports include approximately 18,000 colonies of bees in Florida, Georgia, Alabama, South Carolina, also southern portions of North Carolina and Tennessee.

The main sources of surplus, and, approximately, results are as follows; also where grown and in order of time of blooming: Orange and other citrus fruit in southern Florida: extracted, 85 lbs.; ti-ti, southern Georgia and northern Florida: comb, 35 lbs.; extracted, 59 lbs.; pepper-bush in same territory, but not in same locality—comb, 35 lbs.; extracted, 50 lbs.; black tupelo gum along large water-courses: extracted, 20 lbs.; white tupelo gum in extreme southern Georgia and northwest Florida: comb, 45 lbs.; extracted, 70 lbs.; poplar in southern portion of Georgia and Alabama: comb, 30 lbs.; extracted, 45 lbs.; in middle section of same States: comb, 15; extracted, 25 lbs. The flow from this source gradually let up further north, and was a total failure at the mountains. Although the plant is plentiful, weather conditions are better for it further south. Black locust in mountain sections gave comb, 40 lbs.; extracted, 60 lbs. Gallberry in Florida gave: comb, 15 lbs.; extracted, 25 lbs.; same plant in southern Georgia: comb, 25 lbs.; extracted, 40 lbs.

Owing to the prevailing drouth in southern Georgia and Florida during the latter part of the spring the flow from saw palmetto was very light, the bloom being badly blighted, the flow not averaging over 20 lbs. of extracted honey.

Summing it all up, the spring flow was not over an average one.

Cordele, Ga.

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NORTHERN MICHIGAN WHITE-HONEY FLOW FORTY PER CENT MORE THAN THAT OF AVERAGE YEARS

BY IRA D. BARTLETT

To make this report of most value I feel that a general summing-up of conditions during the season of 1913, and its effect on this year's condition of the bees and local honey market is essential. A line drawn east and west across the center of the lower peninsula of Michigan was a point from which the weather condition and honey crop seemed to improve as the distance increased toward the south, and got worse as the distance increased northward.

This location, being in the north section, was hard hit during the white(?) flow, as all honey was unusually dark, and only fair in flavor. It was also very light. This was followed by an extra good fall flow for this locality from goldenrod and buckwheat, with a little aster.

Now, this late honey naturally put all colonies in fine condition for winter, and had something to do with the bees coming through so strong. It also caused some little honey to be carried over, as there was not the demand for the dark honey. As it is, we have some of the old honey on hand in the stores and in the hands of apiarists (not much, but some). The bees are in fine order, having stored at this date perhaps 40 per cent more than during an average year of the very finest of white honey. Whether this condition will hurt the local market I do not know, but I rather think not; for when the nice new white honey of exquisite flavor is placed on sale the demand ought to be increased on account of the fact that there has been no first-quality honey for a year.

In this locality the willows yield both pollen and nectar the fore part of April if weather permits, and this year we were favored with a short period of fine weather early in April, which opened the bloom and started the bees to breeding fast. This, however, was cut short by a cold snap following, which lasted until May; but the colonies all had plenty of honey; and by getting some brood hatched early it populated them so that they were able to continue brood-rearing, but on a smaller scale. However, the weather brightened up during May; and with the succession of bloom from the poplar, dandelion, and fruit, with some water-maple, also called swamp or spotted maple, in favored sections we were able to fill the hives with bees by June 1.

The raspberry and alsike clover bloomed early, and the bees started at once on them. They also worked on the white clover; but we have very little of this in the sandy sections; and but for the cold and wet weather during the last of June and early July we should have harvested an unusually large amount. But these rains were the making of a future crop from the milkweed plants which were soon to open. These plants are now in full bloom, and bid fair to round up the crop of white honey nicely where they are numerous.

I am not prepared to say just how widely they are spread over the country; but all through Charlevoix, Emmet, Grand Traverse, and Antrim counties, they are plentiful in sections.

Basswood will bloom full, and will be out by the 15th of this month; but the basswood is fast being cut down, and will soon, if not already, be of little use to the beekeeper.

The average crop of white honey in this section for the past ten years has been about 60 lbs. per colony. I should think that 90 lbs. would be a fair estimate for this year of extracted honey, and 60 lbs. for comb. Of course some will get more and some less.

I would say that there are between 2000 and 2500 colonies within a radius of 25 miles, with 30 per cent or more being run for comb honey.

Following are a list, in the order of their blooming, of the main honey-plants of this section which yield more or less pollen and nectar. Elms, tag alders, willows, poplars, soft maples, hard maples, fruit-trees, dandelions, gooseberries, water-maples, wild red raspberries, white and alsike clover, elders, milkweed, basswood, willowherb, buckwheat, goldenrod, and asters, with a little sweet clover, which the best farmers are sowing, and which will help in later years, as this follows the clovers and lasts until fall.

You will note that I have placed no estimate upon the goldenrod and buckwheat crop. This is because we very seldom secure any surplus from this source, although weather conditions have been very favorable to date, and quite an acreage of buckwheat has been sown.

Following is a report of a strong colony on scales this season:

Date	Net gain	Source	Date	Net gain	Source
	Lbs. put on	Clover & raspberry		Lbs. put on	Clover & raspberry
June 7...	6	"	June 25..	10	"
June 8...	9	"	June 26..	5	"
June 9...	8	"	27,28,29	17	"
June 10..	10	"	30, July 1, 2	8	"
June 11, 12	7	"	July 4....	12	"
June 13..	8	"	July 5...	5	milkweed
14,15,16	15	"	July 6...	6	"
17—20	17	"	July 7...	4	"
June 21, 22	5	"	July 8...	2	"
June 23..	8	"	July 9...	6	"
June 24..	6	"			

To date, 173 lbs. net gain.

I trust that this report will be of service in getting at the exact state of affairs. Of course, quite a portion of the honey produced here is consumed at home, especially the comb, which, for the most part, is produced by the smaller apiarist.

East Jordan, Mich., July 10.

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TEXAS CROP LARGER THAN FOR TWO YEARS

BY LOUIS H. SCHOLL

It is rather difficult to report at the present time what the outcome of the Texas honey crop will be. While Southwest Texas has practically harvested its spring crop, Central Texas is just in the midst of the honey-gathering season, and more northern localities are just entering in upon this part of the beekeeping work. Taking all matters into consideration in the various parts of the State, there has already been produced, as compared with the same time of the last two years, a greater amount of honey up to this time; and from indications and prospects in general it is safe to say that the production for the rest of the year will also outweigh that of the past two years. This may not be true of Southwest Texas unless rains prevail during the summer months and produce a late summer or fall crop, as has been the case during several years. Usually, however, Southwest Texas figures only on the spring crop, as the dry summer conditions are too severe on the vegetation.

It is also very difficult to obtain definite figures in regard to the amount of the crop thus far obtained, as well as the number of pounds stored per colony in the various extensive honey-producing sections. This is largely due to the fact that Southwest Texas is just winding up the main spring honey season, and the beekeepers have hardly had time enough in which to size up the situation in this respect. In central and more northern portions of the State the supers on the colonies are in such varying states of completion, and the honey-flows still on, and others in sight, so that new supers are being added, that it is out of the question to ascertain any thing more than a mere guess at the yields per colony. Such guesses would be of little value as compared with true facts or even a fairly accurate estimate.

Owing to the copious rains throughout the fall, winter, and spring months, the season has been most favorable for the various honey-yielding plants and other vegetation upon which the beekeeper depends. Besides a greater profusion of all kinds of spring flowers to insure stronger colonies of bees, and a larger amount of honey from this source, there was an abundance of horsemint this year, and, consequently, a good crop of horsemint honey was obtained. Mesquite is now yielding more or less plentifully in most localities of this section of the State. Very little honey was obtained from this source the last year or two.

Throughout the cotton belt, cotton, the main source from which the biggest part of the honey crop of central and the more northern portions of Texas is obtained, is in excellent condition, and also promises to give us a better yield than last year. In many localities, however, the cotton is in poor condition on account of too abundant rainfall during the spring months. This is especially true of the heavy black-land sections and river-bottom lands.

Sizing up the entire situation, it is safe to say that there is already a large honey crop, and that it will be considerably larger by the end of the year. Compared with last year the crop will be larger, and there will be a still greater difference between this year's crop and that of two years ago. This is already indicated by the unsteady market that prevails now on account of a great rush of honey to the market without any regard to systematic marketing. As Southwest Texas came in with an early crop this year, and with a large production, which was rushed right on to the market, the honey market is in a very demoralized condition at the present time. Prices are just about two cents a pound lower on all kinds of honey, comb and extracted, than have prevailed the last two years. Even at these low prices there is slow demand, and it is difficult to move any quantities of honey except in a few occasional instances and at a low figure. This demoralization is not due to the amount of honey produced so much as to the way the honey is slumped on the market. As the crop in Southwest Texas comes with a rush, and everybody is anxious to turn his honey into money (many of the beekeepers are compelled to do this of necessity, and every effort is made to get it to market), there is always a considerable amount of underselling. And in addition to the rush of honey on to the market, the fact that first one beekeeper and then another sells at a lower price in order to move his honey, causes, in consequence, a rapid depreciation in honey prices.

A further result of this great evil of underselling is that the honey-buyers and jobbers get disgusted with such methods, and quit handling the stuff altogether. The fact that they can not rely on the prices of this product may mean excessive losses to them; and rather than subject themselves to this they will refrain from handling honey at all. For instance, an extensive jobber contracts for honey from one source at a certain price. Another jobber happens to have honey offered to him for half a cent or even a cent per pound less. It is apparent immediately that the first jobber can not compete with the other without selling his honey at the same price. And as honey is handled by these firms on the basis of a cent a pound, it is readily seen that the first-quoted jobber will have to sell for the same price at which he contracted. Consequently he prefers not to run these risks, and stays out of the game of handling an unstable product in the first place at a very unstable price in the second.

M. G. Dervishian's apiary, Nicosia, Cyprus. The two eldest sons shown are his helpers; the three youngest, the honey-eaters. The walls on the back and one side (north and west) are windbreaks.

While the Texas honey crop will be quite large this year, the market is very unsatisfactory just now. But it is hoped that conditions will improve and be much more favorable later in the season.

New Braunfels, Texas.

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BEEKEEPING IN THE COTSWOLDS

BY A. H. BOWEN

Last season we had a beautiful summer of sunshine and a splendid crop of honey. The fine weather started in June, and continued more or less until December; while even in November—usually the dullest month of the year—the sun shone brilliantly, and bees worked hard on the blossoms of the ivy found in abundance on our Cotswold stone walls. But never did they work with more energy than on those long hot June days when the sainfoin blossomed, and more of this delicious honey was stored than for many seasons past. The capping of sainfoin honey is a pale primrose color, and so attractive in appearance that it is often preferred even to that from the white Dutch clover. Many colonies yielded well over 100 pounds of extracted honey each, while one large apiarist took from his best hive 215 pounds, and left the bees with 30 pounds for their winter stores. Indeed, the season would have been a record one had it not started badly. After such a wet summer as 1912, bees went into winter with but little natural stores, and queens worn out by excessive breeding.

In the spring they were naturally weak, and in every apiary losses occurred.

March and April proved cold and windy, so that very little pollen and honey were collected—breeding thus being retarded. But with May it grew warmer, fruit-blossoms commenced to yield, and soon the strongest colonies were working in the supers, keeping two and three tiers going right through the season. The early rains enabled the clover to get a good stand so that it bloomed more freely, and yielded honey several weeks later than usual.

Swarms that year were very plentiful, and those hived on ten fully drawn-out combs did well, and stored something for themselves besides.

Chiefly owing to the fine weather and copious flow there was no outbreak of foul brood, and those that were diseased last year appeared completely cured. In the long run, drastic treatment for disease is the

A "skeppist" of the Cotswold Hills of England.

cheapest and best; and if further helped by a good flow the shaken bees quickly build up, and are rarely infected afterward.

The sugar bill for autumn was almost *nil,* no feeding of any thing but nuclei being necessary. This ought to insure good wintering, for nothing beats well-ripened natural stores, and the colonies that have the most are always the strongest in the spring.

There are evident signs that the public is gradually waking up to the great value of honey as an article of food. The interest that beekeeping has awakened, and the prominence given to it by the press, helps wonderfully with the sales; but there is still plenty of scope for the energetic apiarist. Every village and town has its annual flower show, with its classes for honey, wax, and products of the hive. This has been found one of the best means of creating a demand, and there is nothing more attractive than a well-arranged honey-show, while the keen competition has raised the standard of the honey so high that it drives the rough produce of careless beekeepers and straw-skeppists completely out of the market.

There are some who claim that the production of extracted honey calls for but little skill in comparison to the comb. In my experience it is exactly the reverse.

No novice in this country thinks of producing extracted honey until he has worked for sections a few years; and every hive sold by manufacturers is fitted with a section-rack unless otherwise ordered. When your hive is strong you place on the 21 sections with foundation, and the bees do the rest. To remove them is easy by means of the "escape" board, and the labor is practically nothing by the side of producing extracted honey.

With the latter, every comb must be clean and perfectly sealed before extraction, while the honey needs great care in the straining, especially if it is to be sold in bottles.

Bits of wax, scum, or froth on the surface is no advertisement, and such honey has a bad effect on the market in general. For the most part, any thing easy is badly done; and if you teach that extracted-honey production is child's play, then can you wonder that often an unmarketable product results?

RUSTIC BEEKEEPING.

Every one likes our Cotswold skeppist, even if he is fifty years behind the times. His quaint manner and methods are so delightfully old-world that we shall be sorry indeed when our hamlets know him no longer. To see him at his best you must enter the bee-garden and watch him weaving skeps under the damson tree, with a glistening pile of straw on one side, and a heap of split bramble wands on the other. The material is cheap enough, and a knife is the only tool for the making of these and their warm hackels of straw.

The swarms are hived in the newest and best skeps; and when they want feeding the beeman whets the edge of his knife upon the side of his shoe and proceeds to cut an alder stick from the garden hedge.

A short piece is selected, split apart, the pith scraped out, and here are two feeders ready for use. They are thrust into the hive mouth, and filled each evening with a mixture of any thing sweet until the bees can take care of themselves. If in a talkative mood he will tell you with pleasure about "owd Tom's bees as died arter all, although 'e fed 'em while 'e could git about." "And what could 'is widder expect wen she ne'er woke 'em up, nor put 'em in mournin'?" "Bees be curis things now," he will observe, lighting his pipe, "and I well mind 'ow when Uncle Jim died 'is skep perished the follerin' winter, 'cause 'e ne'er put a scrap o' black on any on 'em. Now, when my father died, close on thirty 'ear ago, I took care to wake the bees up, and put all the hives in mournin'. I cut up his old black weskit on purpose, and not one on 'em perished; and they was the forridest of any about to swarm and cut that spring. Wot a woppin' lot of honey I 'ad that 'ear too! Sold £6 worth, 'sides wot was eat at 'ome, and brewed a big barrel of mead in t' bargain."

The accompanying photograph shows part of a quaint Cotswold bee-garden with its owner, who spends many happy hours among the bees.

Cheltenham, England.

A STUDY OF THE HIVE

BY F. GREINER

The process of incubation, as well as the growth of insects, the development of the fetus of and within our different domestic animals, etc., is not so exactly fixed to the minute that we can depend on such exactness. There are retarding influences at work sometimes, of which we are ignorant, which leave us to make guesses, and very many times we are obliged to confess that we do not know the reasons.

Dr. Miller has observed worker bees to mature in 20 days minus two hours. This is, I believe, the shortest time on record up to this time so far as I know. I have *seen* bees emerge from cells into which I *saw* the queen lay the eggs. It was during very warm weather in August, and the colony I was experimenting with was of normal strength, but in a contracted brood-chamber, capacity five L. frames. The time varied from twenty days and two hours to twenty days and fourteen and a half hours. I observed that the larvæ of these same bees were sealed over in their cells in from eight days and fourteen hours to just nine days. In no case did it take any longer.

I have seen queens deposit eggs in drone-cells. These same cells were sealed within ten days; some may have been sealed a little earlier. The matured drones came forth, and I saw them emerging in from 24 days 16 hours to 24 days 22½ hours.

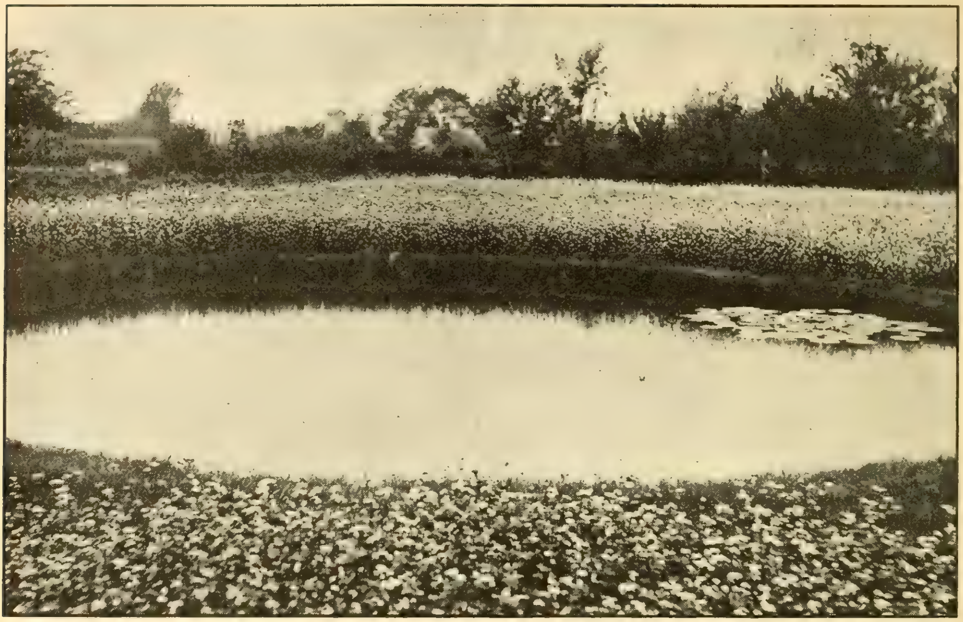
I have kept bees since 1874, and since 1875 have handled from 100 to 300 colonies each year; but I have not yet been fortunate enough to surprise a queen in the act of depositing an egg in a queen-cell. I am most anxious to satisfy myself as to just how much time is required to bring a queen to maturity under perfectly normal conditions; but I am afraid I shall have to leave it for others to find out.

Other interesting facts along this line, and observations made, I might mention. I have noticed bees coming in loaded with pollen when five days old—this under abnormal conditions; and under normal conditions they were twelve days old.

In a colony of native bees, which had been requeened with an Italian mother, the bees that were at work in the sections were all of the yellow type when the oldest yellow bees were ten days old.

When the youngest native bees were eighteen days old, none were seen in the sections. All the bees hanging in strings in the sections secreting wax, and others climbing up and down on them looking for and gathering wax-scales, were yellow bees. In other words, the comb-building was done by the young bees.

In conclusion I want to recommend to all young beekeepers to make a study of the hive, to watch the behavior of the bees, and to make note of all observations made in detail, using for the purpose a special note-book. The interested student will find the work most fascinating, and will find a great many things to write down he never had thought of before. He may observe the feeding of the larvæ, the sealing of the cells,



Reservoir surrounded by buckwheat at Frank Harlan's berry-garden, Revere, Mo.

the secretion of the wax and the comb-building, the handling of the propolis, the storing of the pollen, the feeding of the queen and the drones by nurse-bees, the depositing of eggs by the queen, and many other things. He may thus obtain a better understanding of what is going on within the hive. The pleasure and delight which such study affords, and the value thereof, cannot be measured with and expressed in dollars and cents. In a few years his note-book will become a most valuable document, a record for future reference.

Naples, N. Y.

WILD THYME, OR SUMMER SAVORY

Beekeeping in the Haunts of "Rip Van Winkle."

BY J. B. MERWIN

I have been reading GLEANINGS for several years, and little if any thing have I noticed in its columns of the plant known as wild thyme. A good many know the garden thyme, grown for the purpose of seasoning meats, soups, etc.; but I dare say few of the readers of GLEANINGS have had the pleasure of seeing the wild thyme growing in its natural seed-bed and in full bloom. To pass through a field of wild thyme and get the fragrance, and see the millions of purple blossoms, is certainly a treat to any one who cares for flowers.

For several miles in each direction from my home in the eastern part of Delaware County, Catskill Mountains, New York, this plant has its seed-bed. Here can be found several thousand acres of hills and valleys completely carpeted by this plant. I have never found it outside of this circle or community. A stranger riding along the highway in July or August, and observing the fields at a distance, would say they were plowed, and that the soil was red slate; but on closer observation he would find the fields covered with thyme in bloom. This plant is not as plentiful in the meadow lands that are cultivated year after year, but along the roadside for miles, and in pasture land, is where the thyme predominates; and it grows in such a mass over the ground that walking over it is like walking on a brussels carpet.

As an ideal honey-plant it is considered by some to be second to none. It begins to bloom about the 15th of July or about the time that basswood is through blooming, and continues to bloom until killed by the frost; and in some sheltered places this plant continues to bloom late in November. No matter what the season is, we get some honey from this plant, and it comes when there is nothing else for the bees to work on. We never get strictly pure buckwheat honey from our home yard, as it is always part "savory" honey; and after the buckwheat harvest is over the bees continue carrying honey from the "summer savory" (this is the name it goes by here), and nearly every fall in September we extract from the body of the hives from two to five frames of savory honey, and the empty frames are returned for the bees to fill later for their winter stores.

I have been keeping bees for 20 years, and have never failed to get some honey from this plant when I failed from all other sources. Five years ago from 60 colonies, spring count, I produced over four thousand pounds of comb honey besides increasing to 85 colonies.

This was not a record-breaker, but better than none in a poor season. Last season was the poorest in this section that we have had in many years. We had cold freezing weather up to June, freezing back fruit, locust, basswood, etc., so we got no honey from these. One of the driest of summers followed. However, from 170 colonies, spring count, we secured 6000 lbs. of honey; while several miles from here, and just outside this thyme belt, a beekeeper with 75 colonies, and running for comb honey, failed to get an ounce. Another party, in the thyme section, just a few miles from me, secured 800 pounds of comb honey from 60 colonies.

We have one drawback. There are no early honey-flows here excepting from dandelion and fruit bloom, and it is only by moving the bees to outyards, and careful manipulation, that we get them built up for clover bloom. I don't know that we can call this a drawback; for in one way, by having the locality a little overstocked at this season it puts a damper to swarming. We had only five natural swarms from 170 colonies the past season.

The honey from wild thyme is of the finest quality and a good seller. "A customer once, always a customer."

I have heard a good many people say that this plant resembles heather; so, after I decided to write this article I wrote to John Burroughs, the naturalist (who has a summer home not far from my place), enquiring in what way this plant resembled heather, and asking if he had ever found it growing in other localities. The following is the reply:

> The plant you refer to is a species of mint. It is not related to the heather. The heather is much larger and more showy. Our arbutus, wintergreen, laurel, and many others are of this family. I noticed this mint covering the pasture and roadsides last summer when I drove to Prattsville and to Johnson Hollow. I forget its specific name. I have never seen it elsewhere. I have tried your honey, and like it.
> JOHN BURROUGHS.
> West Park, New York, Dec. 17.

Wild thyme, or summer savory, which is a sure yielder in the eastern part of Delaware County, N. Y.

It seems that this is a rare plant, or Mr. Burroughs would certainly have found it in his travels.

As a forage plant there are better (clover and several other grasses are better); but none of them come at a time of year when they can supplant the thyme. This plant will grow and thrive on land too poor for these other grasses to grow on. There is no land too poor, no winter too cold, and no summer too dry, for this plant—at least not in this section, and we have some pretty cold winters and some dry summers. I have known this plant to grow on a side hill of gravel, and in a very dry season cover the ground (stones included) with a luxuriant growth.

In the thyme belt are a good many large farms, and many of these farmers keep from 25 to 100 cows; and on several of these farms all the cows have to graze on through the summer months is thyme. I have known of but two farmers who tried to get rid of this plant. One deemed it a nuisance, and decided to kill it with salt. He began several years ago by buying salt by the carload and spreading it on the land; but this was only temporary relief. The savory is as much in evidence on this place as ever. Another farmer, purchasing a farm not many years ago, decided he would kill the thyme by plowing, and he started in to plow up his farm, and plowed every field that could be plowed. The plowing of the pasture land only made a better seed bed for the thyme, which grew thicker and more abundantly; and this place that would barely keep eighteen cows, in a few years was keeping sixty.

The illustration shows the plant itself. Nearly all the blossoms have fallen; but by observing closely, a few can be detected. I recently pulled one crown root that contained 30 vines or tendrils from 3 to 15 inches in length, and each vine had half as many shorter vines attached. None of these vines had taken root, but as a rule the most of them do.

Prattsville, N. Y.

A GOOD YIELD FROM A DOUBLE COLONY

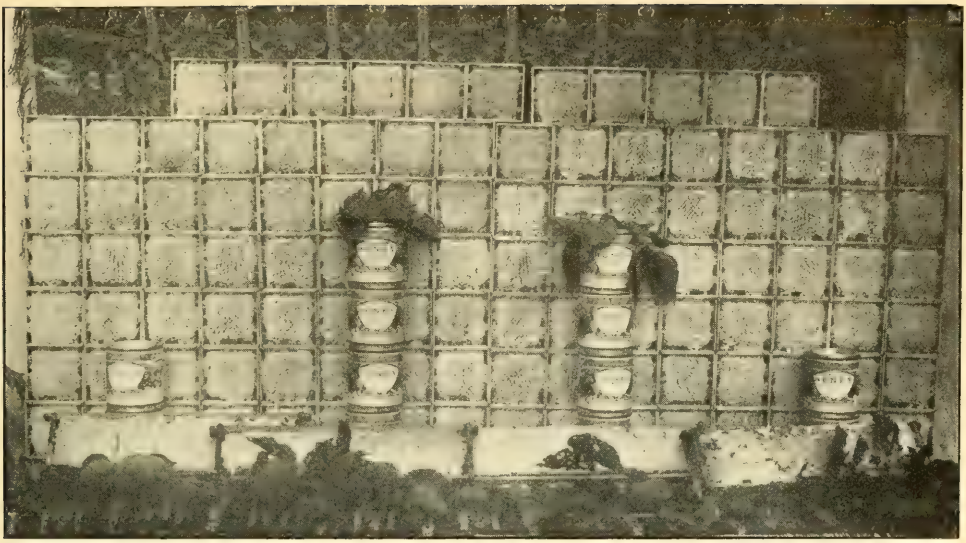
BY C. R. SMITH

I am sending you some pictures of a double hive I made a year ago last spring, and also one of the honey crop that I secured from it. The hive was an experiment only. The supers were too heavy to handle.

I started a few nuclei late in the season of 1912, two of which were side by side. They had four and five frames, and not very many bees; so I put them into a chaff hive with a screen-wire division-board between them. They wintered well, as did all my other bees. Then I thought that, having acquired the same hive odor, they would work together. So I made a hive 32 inches wide the same as two ten-frame hives with two supers, same size. I made a queen-excluding division-board and lifted the nuclei into the large hive when they had brood started nicely. I gave them frames of brood from strong colonies, one at a time, and the hive was filled out full with 20 frames when other colonies began to swarm.

C. R. Smith's double colony and hive.

This double colony did not develop its working force till other hives had filled a super or more. The first super had three shallow frames with drawn comb on outsides (which they filled first), and 52 sections with starters. The bees worked together nicely until the first super was partly done; then they swarmed when I was away. My wife found both queens, and put them back with the returning bees. In a few days they swarmed again when I was away, but they were still hanging on a limb. I think both



108 sections and 45 pounds of extracted honey from a double colony.

queens got lost this time. I wanted to remove the brood-frames of foundation, so I went at them and got the frames out of one side, when a thunder storm came up and the bees came back; so I had to close up the hive and quit. The bees worked on for a week or more, and about finished the super, when they swarmed out with a virgin queen, and were still clustered at dark when I got home. Such a swarm! I got them in a cracker-box and weighed them; went through the hive, cut out all cells (about 30, I think). I dumped the swarm in front, and found there were 19 lbs. of bees in all.

The season was then advanced, and I was in doubt about giving many more sections, but concluded to risk it; so I fixed the other supers with 56 sections and one shallow comb. The weather was extremely warm, and there were so many bees I put ⅞-inch blocks under corners and middle. There were bees on the front and back clear to the top, in spite of the ventilation, and a large piece of roofing paper which I used for shade. In a short time they had filled every section. The supers were then taken off with two ten-frame escape-boards. The season was about over, but I put on two ten-frame bodies with extracting-frames, and got 31 lbs. of extracted honey, which, with the four shallow frames, made about 45 lbs. of extracted and 108 sections of comb. That is no more than some single hives did; but if the colony had had its working force at the beginning of the honey-flow I should probably have secured two or three hundred sections.

Dresden, Ohio.

HONEY GATHERED FROM MILKWEED

BY GEORGE H. KIRKPATRICK

We sometimes see milkweed honey advertised for sale. I have seen it on exhibition at fairs, but I can recall but few articles published in the bee-journals in regard to milkweed honey or the plant.

The milkweed plant is found in most parts of northern Michigan. It is said to be very plentiful in localities that were once Indian settlements. I have grown milkweed in the greenhouse, the hotbed, the garden, and on the farm. About 90 per cent of the seed germinates, but I find the small or young plants are very tender. But few ever mature to a full-grown plant. If a plant once gets rooted down into the soil to a depth of six to ten inches it is apparently there to stay.

For the past 16 years I have been a very careful observer of the milkweed plant, and for years I have encouraged its growth on my farm. My neighbors have discouraged its growth; but to-day many of these same neighbors have far more milkweed on their farms than I have. Milkweed is classed with the noxious weeds. Our highway commissioners require them cut, and the farmers

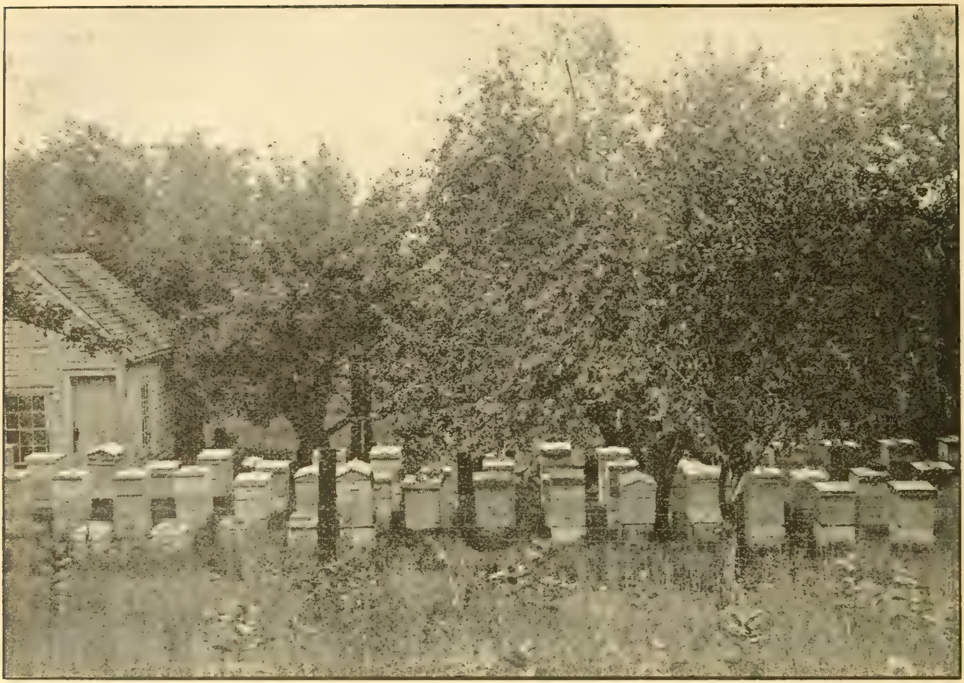


FIG. 1.—An apiary in Michigan where the yield of milkweed honey last year was 95 pounds per colony.

try to eradicate them. But I am very sure that in this section of the country the plants are yearly becoming more plentiful. Quite a few of my neighbors are frank to make the claim that milkweeds add to the fertility of the soil.

Agriculturists are following the lumbermen so closely that in many sections the wild red raspberry is becoming a thing of the past. The milkweed now thrives in many parts of northern Michigan to the extent that beekeepers are securing some very fine crops of milkweed honey. It begins to blossom about 20 days later than clover or raspberry. When the atmospheric conditions are favorable milkweed yields much nectar. I have had colonies carry an average of 11 pounds per day for ten successive days. A populous colony will sometimes carry from milkweed bloom 13 to 17 pounds in a single day.

The quality of the honey is excellent. I believe there is no better honey than well-ripened milkweed. The color is almost water-white. It is of good body and flavor. Because of its heavy body it is necessary to warm the combs before extracting.

Fig. 1 shows an apiary that I have had the care of for the past three years, and which belongs to Mrs. Tom Russel, Antrim Co., Mich. In this yard we get only milkweed honey. The 1913 crop was 95 pounds per colony, spring count.

Fig. 2 shows the milkweed in blossom.

Rapid City, Mich.

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NATURAL VS. ARTIFICIAL RIPENING OF HONEY

BY I. HOPKINS

I hope, Mr. Editor, you will allow me, before finally closing the discussion on this subject, to reply briefly to your editorial in your issue for Oct. 15, 1913, p. 703. I shall then be quite satisfied to remain silent until you deem it advantageous to open the subject again.

When noticing the discussion on the ripening of honey which recently appeared in *The Australasian Beekeeper*, you say, " We desire to point out in passing that at least one of the writers is laboring under a misapprehension when he believes that the bees do nothing to the nectar of the flowers except to evaporate the excess of moisture—in other words, that the ripening process is merely driving off the excess of water." Then you further remark, in order to point out the mistake the writer referred to has made, that "All chemists know that there is a decided chemical difference between the sugar found in the nectar of flowers and that in ripened honey. By the time the evaporation is accomplished by the bees, the inversion, as it is technically called, has been brought about."

FIG. 2.—The milkweed, which is becoming an important honey-plant in many parts of Michigan.

As I believe I was one of the first to advance the theory you take objections to, and have not yet seen any authoritative statement refuting it, I still hold that the evaporation of excess moisture constitutes the principal process of ripening honey so far as the care to be exercised by the beekeeper is concerned, and that this can be done as well outside as within the hive. That there is a chemical change in the sugar or sugars going on during the course of ripening I have no doubt. Chemical analysis has proved this; but you imply that this change ("inversion") can be brought about only by the bees when honey is ripened within the hive. This appears to be only an assertion on your part. You quote no chemical authority in proof of your statement. If proof can be brought that such changes in the sugars (whatever they may be) resulting in complete inversion take place in honey ripened outside the hive, then your argument on this point falls to the ground.

Now, the two samples of honey I sent from our government apiary to Dr. Phillips, which he very kindly had analyzed for me by Dr. Wiley, then Chief of the Chemical Bureau of your Department of Agriculture, were part of two crops of honey saved in following years, and saved under the system of ripening outside the hive. In the one case the sucrose content was 0.29 per cent, and in the other, 0.00 per cent, indicating, as Dr. Phillips remarked, "complete inversion." He also added: "The water content is very low in both (samples), indicating well-ripened honey. I sent you the full report of the analysis some time ago. The above are facts which speak for themselves. There is no speculative assertion of what the bees do or they don't do. We need facts in a question of so much importance to the beekeeping industry.

You yourself point to the fact that uncapped honey, which, presumably, the bees had little to do with beyond storing it, can be as "thick (ripe) and the flavor equal to the best." You also admit that an "expert may succeed," but you "can not recommend the practice for the average beekeeper under the average conditions." In point of fact you have all along condemned the process, which condemnation, coming from the editor of GLEANINGS, has, I know, influenced others. Even in New Zealand I have been told by some who have been influenced without a trial, "Oh! the editor of GLEANINGS condemns ripening honey outside the hive," and this is sufficient for them. They don't want to try it after that.

You strongly advocate making all the "short cuts" possible in bee culture; and yet when a clever and reliable man like the late E. W. Alexander shows a way to get, as he says, "twice the amount (of honey) with much less labor and waste," and which he was practicing himself, you condemn it. You have stated in other places that you are afraid there are some who would not carry the work out properly. Therefore you do not advocate the system, which means that *you* would keep all beekeepers back to the same level of these people—a very unsound argument.

Auckland, New Zealand, Nov. 20, '13.

[Without taking up the question in detail as to whether the chemical change between the nectar of the flowers and well-ripened honey takes place wholly in the honey-sac of the bee, or to a certain extent after the liquid has been stored in the cell, we merely wish to make this statement which we believe to be the absolute truth: There is scarcely a single honey market in this country that has not suffered at least once, and in most cases a number of times, under the burden of a great quantity of unripe honey remaining unsold on the grocer's shelves, or waiting for a buyer at the warehouse of some commission merchant or honey-dealer It is true that this fact does not prove that honey may not be successfully ripened outside the hive; but it does prove beyond all doubt that very few beekeepers are able to ripen honey successfully outside the hive. Most extensive producers have found that there are times when honey not entirely sealed or altogether unsealed is, nevertheless, ripe and ready to be extracted. This, however, has little to do with the question before us.

Like our correspondent we much prefer to let results speak for themselves. Here, then, are the results. There is no doubt that E. W. Alexander was successful in ripening buckwheat honey outside the hive. We also believe that our correspondent is also successful. On the other hand, as we stated above, there is scarcely a honey market that has not had its share of unripe honey, marketed, too, by beekeepers who had done their best to ripen their crop outside the hive. We should say that a conservative estimate would show close to ninety-nine failures out of one hundred. In the face of such evidence, our opinion remains unchanged—that is, that, while a few experts with favorable atmospheric conditions and proper equipment, and by a careful study and unceasing care, may market good honey ripened outside the hive, the average producer can not do better than err on the safe side, and extract only ripened honey, and thus be assured of placing before the consumers an article of food that will be pleasing and that will create for itself a constantly increasing demand.—Ed.]

BEE-POISON AS A CURATIVE AGENT

CONDENSED TRANSLATION BY J. A. HEBERLE, B.S.

The original article was written especially for the medical fraternity by Dr. A. Keiter-Graz, and published in the *Therapeutic Monthly,* Basel. For several years Dr. Keiter has practiced the application of bee-stings according to the methods of Dr. Ph. Terc, Marburg. The success of this method was so decided with muscular and articular rheumatism, chronic and acute, with polyartritis deformans and gout, that he considered it his duty to call the attention of his colleagues to this *not new* but *insufficiently* esteemed method of treating the above-named diseases.

Dr. Keiter gives the effect of a sting on normal persons and on persons peculiarly sensitive to bee-poison. He mentioned that beekeepers become gradually immune to bee-poison, and at the same time to rheumatism.

A BEEKEEPER RARELY SUFFERS FROM RHEUMATISM.

This immunity is like the injection of a serum for certain diseases. Its effect is limited by time, and should be acquired each year for a few years in succession to become permanent.

Dr. Terc found that on persons who were immune from birth a bee-sting would produce no swelling. Such persons were also immune to rheumatism. He also found persons that were healthy, but a single bee-sting would produce an unusually severe reaction, both locally and in general. This unusual sensitiveness is termed idiosyncrasy.

A person afflicted with rheumatism reacts differently on a bee-sting than a healthy person. Locally the reddening and the quaddle, about ¼-inch in diameter, are the same primary reaction, according to Dr. Terc, but often disappear completely within half an hour. A secondary reaction on the body and skin—a painful swelling lasting two or three days—has not been observed on persons suffering from rheumatism. The pain of the sting is much less than on a healthy person, and the rheumatic pain is reduced. The effect is very apparent. Persons suffering from angular rheumatism, who could only with difficulty come to the consultation-room, would often by the first trial inoculation (2 to 3 stings) find considerable relief, and become very hopeful because they could walk with more ease. If the patient wishes to be treated, then it is best that the stings be applied daily, gradually increasing the number of stings he may get, so he can stand 50 to 100 stings, and even more, in one day.

The time required until the patient reaches the swelling stage—where the reaction is like that on a healthy person when stung for the first time—depends on the long standing and the severity of the ailment. This state every rheumatic patient must reach—secondary reaction, according to Dr. Terc. Besides the local reaction, this secondary reaction is often accompanied by chill, fever (39 degrees C. and even higher), vomiting, diarrhoea, difficulty in breathing, palpitation, headache, dizziness, etc., but it need give no uneasiness. Fever and swelling of the part where the stings are applied may, with some intermittence, last a few days. During such a time the number of stings may be lessened, or treatment for a few days suspended (this latter is rarely necessary). After this point in the treatment is reached the application of stings must be continued until complete immunity, which in severe cases of long standing requires much time and patience on the part of the patient and physician. Especially in severe cases, there occur during the treatment relapses. The patient must be brave and persistent to hold out until the cure is complete.

The bees are taken into the room where they fly to the window from which they are taken with the bare fingers and put on that part of the patient where the pain is located. After the stinging the bee will get loose; but the sting, on account of its barbs, remains. It bores itself deeper into the flesh, and the attached poison-bladder endeavors by contractions to empty itself of the last particle of poison. Prof. Dr. Langer has made an authentic analysis of bee-poison. It is formic acid, and a base which is destroyed by the digestive ferments.

The daily increase of the number of stings is according to the case and the age and condition of the patient, from two to five or even ten stings. At the beginning the increase ought to be very gradual. Patients who receive at one sitting too many stings show often besides a higher blood pressure and increased pulse; an injection in the conjunctiva (red eyes), and always get red in the face. Dizziness, palpitation; sickness at the stomach, etc., are signs to stop with the treatment for that day. There is no need to be alarmed.

During the bee-sting treatment no other medicines ought to be given. No special diet need be prescribed. No alcohol is allowed. These three points were invariably adhered to in all cases treated. (Dr. Terc has about 1500 and Dr. Keiter 500 patients.) Only where in the swelling stage the itching was very annoying, lanoline *creme* or a cooling poultice was used to allay the itching. After the swelling stage is over the acute symptoms—sleeplessness, pain, and immovability of the joints diminish, while the general health and appetite improve, and the patient gains in weight. The particular part treated will have changed so much that further stings will cause hardly any pain.

It seems best to make use of the bee-sting treatment only under the advice of a physician—especially in cases of long standing. The first time two or three stings on the aching part seem to be sufficient in most cases; then gradually increase daily the number of stings until the secondary reaction sets in. Up to that time the rheumatic poison seems to have been neutralized or destroyed. At this stage the patient reacts like a healthy person not accustomed to stings. It is well at this swelling stage to treat the patient just as at the beginning, and gradually increase until immunity is reached.

Markt Oberdorf, Bavaria, Germany.

THE POPPY AS A POLLEN-PLANT

BY W. G. M'NAIR

Being a beginner in beekeeping, and having heard that poppies stupefy bees, I kept a close watch on my bees and poppies. So far as I could see, the poppies had any thing but a stupefying effect on them. I have seen them gathering pollen from poppies at five o'clock in the morning as fast as they could go.

In gathering pollen from a single poppy the bee never alights on the flower. It stands in the air, as it were, above the stamens, and combs off the pollen and packs it in its bread-baskets.

From the double poppy it works in among the petals to get at the pollen; and as soon as her baskets are full she is off.

I have watched them for hours, and have never seen them sip any thing from the poppy. They seem to recognize the poppy as a friend, and work it for pollen as hard as they can go.

When the poppy blooms here, there is plenty of pollen to be had from other plants, and it seems very odd that any insect which has the instinct that the bees possess would gather pollen from a plant that is deadly to them.

The only trouble that I can see in regard to the poppy is that, when honey is scarce and poppies plentiful, the bees might store too much pollen in their combs.

The poppies that the bees work the most on are Shirley, Iceland, Single Annual, and Simi Double varieties.

Hamilton, Ontario.

POPPIES YIELD POLLEN ONLY

BY JOHN H. LOVELL

In reference to the editorial in the Feb. 1st issue of GLEANINGS regarding bees and poppies, I should like to explain that the poppies are pollen flowers, and are absolutely devoid of nectar. There is no such thing as poppy honey. An acre of poppies would not yield a drop of honey. Honeybees visit the poppies for pollen only, of which there is an abundant supply. During the past summer I repeatedly watched the bees at work on the poppy flowers in my garden. Not a single bee was stupefied or injured in any way. Once I saw a bee visit a flower which had just opened. It could obtain as yet no pollen, for the anthers were still closed, and so it searched the flower at the base of the petals for nectar; but, finding nothing, it gave up the attempt in about a minute.

"Poppy juice," or latex, as you know, is milky white. If bees could obtain this, and would feed upon it, possibly the effects described might be produced; but under ordinary conditions this would seem to be impossible. If, however, the poppies were cut down, the milky sap would exude more or less from the cut stems, and might then be obtained by the bees. It seems very doubtful if they would touch it even then. This story, if I mistake not, has several times before been in circulation. It is easy to understand how a beekeeper who supposed the poppies to yield nectar might easily imagine it to be somniferous; and if there were such a thing perhaps it would be. In the case cited, manifestly the bees would have recovered in less than a week or they would have been dead.

Waldoboro, Maine.

WHAT THE SCALE HIVE SHOWED

BY U. H. BOWEN

We have had a hive on scales each season for many years, and we would not like to be without it. We know every day just what the bees are doing. The record of 26 lbs. mentioned by Mr. Pellet in the *Canadian Horticulturist* last fall was made on July 3, 1912. Last year the highest was 25 lbs. on June 16. Some twenty years ago the hive gained 23 lbs. in one day, and that stood as the record until 1912.

I am sending a view of the apiary. The scales can be seen at the right of the center.

Niagara Falls, Ont.

Apiary of U. H. Bowen, Niagara Falls, Ont., where the scale hive on the 16th of June, 1913, showed a gain of 25 pounds.

POETS UNDER THE CHERRY-TREES

BY GRACE ALLEN

I linger for hours among my books,
Where the friendly sun so often looks
Across the pages and seems to say,
"What! Reading your poets again to-day?"

And then when the letters have tired my eyes
And I'm thirsty for breezes blown out of the skies,
I close up my books and go out to my bees,
My poets under the cherry-trees.

CROP CONDITIONS FROM A COMMISSION MERCHANT'S STANDPOINT

BY S. T. FISH & CO.

Western New York reports clover comb and extracted in most sections a total failure. In some places basswood is showing up well.

Some Michigan points report weather conditions quite favorable, and a fair crop expected. Most producers run for extracted honey.

Sections around Richland Center, Wis., report the crop very short, very little white clover, and about half to three-quarters of a crop of basswood. Season is entirely too wet and cloudy.

Some Ohio points report about half a crop, while others report a quarter to half a crop.

Sections around Medina, Wis., report that the month of June was too cold and wet. Basswood, very short duration. Some of the beekeepers may harvest half a crop.

Sections around Greenwood, Wis., report weather entirely too wet. Very little honey to be marketed.

Nevada reports a short crop.

Sections around Marshfield, Wis., report prospects very unfavorable on account of too much rain, also heavy loss of bees, and weak condition of bees at the present time.

Montana points will have about half to three-quarters of a crop. At the present time there is a good honey-flow in that section.

In points around Appleton, Wis., Fond du Lac, and Oshkosh, honey crop is short compared with last season. Weather is too wet, cold, and cloudy.

Points around Chippewa Falls, Wis., report about half a crop on account of weather being too cold and wet. Unfavorable weather prevented the bees from doing any work during two of the best weeks during clover.

St. Anne, Ill., reports a total failure on account of dry weather.

Sections around Boyd, Wis., Stanley, Wis., report honey crop almost a failure. Bees have not stored any honey up to July 10.

Augusta, Wis., reports a fair outlook for honey; however, rains have delayed the season, but colonies are in good condition to gather honey.

Points around Osseo, Wis., report prospects up to July 6 not very good—too much wet weather.

Points around Woodford, Wis., up to July 10 report prospects very unfavorable —weather too cold and too wet. About half a crop or less expected.

DeKalb, Ill., reports favorable conditions, and that a good strong honey-flow is on now.

Points around Idaho Falls, Idaho, report a good crop of both comb and extracted honey.

Points around Baraboo, Wis., report a very poor crop of white clover, but a fair crop of basswood (mostly an extracted-honey section).

Coon Valley, Wis., reports a fair crop (mostly an extracted-honey section).

Chicago, Ill., July 18.

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A CROP OF 70 POUNDS TO THE COLONY

BY GEO. H. KIRKPATRICK

In summing up the honey crop to date I find the number of colonies in the fall of 1913, included in the area which I am reporting, was 1463. Winter losses were very light; and as the spring was unusually fair for the bees, the winter and spring loss was only about 10 per cent. Thus there were in this section of the State, at the beginning of the honey harvest, about 1330 colonies.

At this date only about half of the crop has been extracted, but it is safe to put the net average at 70 pounds per colony, spring count, or a total of 93,100 pounds, only about 2 per cent of which is comb honey. I should estimate this to be about 70 per cent of an average crop. Last season this same section had only about 40 per cent of an average crop.

Very nearly all of the honey included in the above figures was gathered from the wild red raspberry, and, as usual, is of excellent quality, it being light in color, good body, and good flavor.

In many parts of this section of the country the bees are gathering honey from the milkweed plant at the rate of from 6 to 12 lbs. per day per colony. Should there be just a few more days of good honey weather the flow from the milkweed will bring the average per colony up to 100 lbs.

The basswood in the forest is mostly cut; but in some sections there is plenty of second growth; and as it will bloom this season there is a chance for some honey from that.

Rapid City, Mich.

CROP PROSPECTS IN UTAH AND IDAHO

BY F. W. REDFIELD

Although the spring was unfavorable, especially in Utah, prospects for a full crop, both in Utah and Idaho, are excellent at this writing. The cool damp spring, coupled with the alfalfa weevil throughout most of Utah, necessitated considerable feeding to keep the bees from starving. The alfalfa weevil, however, is still confined mostly to Utah, there being very little in Idaho. Sweet clover is abundant at this writing, and blossoming nicely. The crop depends entirely on how long the frost holds off this season. No comb honey has been completed to date, but the bees started in the comb-honey supers nicely during the past week. They are storing considerable honey in extracting-supers. Extracting at Idaho Falls will begin July 20 to 25, and in most parts of Utah about July 25. If frost holds off until the last of August the yield both of comb and extracted will be much greater than last year. Weather is warm at present, and conditions indicate an average of about 75 lbs. comb honey per colony, spring count, or 150 of extracted honey. Early frost would cut down this average, while a late frost would increase the average. At this writing weather conditions and condition of the bloom were never better, except in parts of Utah where the alfalfa weevil is at its worst. Even in such parts the weevil has now changed to the beetle, and that, of course, will not injure the bloom in the least from now on, both alfalfa and sweet clover yielding honey heavily throughout Utah and Idaho at this writing.

Ogden, Utah, July 18.

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OREGON CROP BETTER THAN LAST YEAR

REPORTED BY THE PORTLAND SEED COMPANY

In the Willamette Valley from Portland south we find that the expectations are that the bulk of the crop has been secured. This is true in nearly all localities. The vetch is being harvested; alsike clover is ready to cut; white clover is failing rapidly on account of the dry weather. Colonies average 75 lbs. comb honey. In a few instances some expectations are that colonies have put up 250 lbs. and upward.

East of the mountains we understand the alfalfa crop is hardly up to average, and at the present time the beemen do not seem willing even to guess their average. Mountain and river district reports will be incomplete, as fireweed is now in full bloom, and bees are storing rapidly. Expectations are for from 75 to 100 lbs. comb honey.

Portland has but one source of surplus—white clover. Hundreds of acres have been blooming for weeks. Honey is first-class, colonies averaging 75 lbs. of fancy white-clover honey. We consider the season a better average in all districts than last year.

Portland, Ore., July 14.

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LIGHT CROP IN SOUTHERN WISCONSIN

BY N. E. FRANCE

Southern Wisconsin clover bloom has been abundant, and is yet; cold nights and no nectar; abundance of rain. July 5-10, basswood yielded well here. Many hives now have three sets (30 in all) of L. frames full of white honey. Season is over here. General crop here is light.

Platteville, Wis., July 11.

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RAIN CAME TOO LATE

BY P. J. R. MANEGOLD

The bees were in fine condition this spring. They did well during fruit bloom, and there was certainly every prospect of a good season, but the dry and hot weather, commencing earlier than last year, ruined it all.

We have no white clover around here this season, while last year there was an abundance of it everywhere. Those within reach of basswood may have done well as it was excellent. There will be but very little surplus honey in this locality.

West Point, Iowa.

LATE TELEGRAPHIC REPORTS OF THE CONDITIONS OF HONEY CROP AND MARKETS

FURNISHED BY DEALERS IN VARIOUS PARTS OF THE COUNTRY.

Bees did fine through fruit bloom, but they are not getting much from white or sweet clover because the weather is too dry. Basswood opened a week early, but bad weather cut off three days. A few reports are fair, but most indicate about half a crop. The honey average among good beekeepers will be 50 pounds extracted or 30 comb as against 100 and 60 pounds respectively last year.

Des Moines, Ia., July 18.

Michigan estimate, two-thirds crop. Comb, per colony, 40 pounds; extracted, 75 pounds. Compared with last year, better. Basswood flow good. Clover flow good in spots. Raspberry flow fair. Eastern half of State favored. Northern Michigan fair; southern Michigan doubtful.

Lansing, Mich., July 20.

First crop about gathered. Reports from all southwest Texas show a vast improvement over last year's production—more than equaling a normal year, and averaging seventy to eighty pounds per colony (two-thirds bulk comb). Uvalde crop is three weeks earlier than others, and low quotations resulted in a poor market. The outlook is promising for a fair second crop.

San Antonio, Tex., July 18.

Reports from twelve largest honey-producers in Maine say cold spring. Season two weeks late. More clover-blossom than for several years. Season looks much better than last season at this date. Too early to estimate on crop. Bees working well, and in fine condition.

Mechanic Falls, Me., July 20.

Reports from over the State indicate only half the usual crop of honey. Alfalfa, owing to extremely dry weather, is very poor in nectar. If we have rain we may get good surplus from cotton; usual average per colony in a normal year is fifty pounds figured as bulk comb honey.

Stillwater, Okla., July 15.

Extracted-honey crop from orange is small, practically all sold. Sage and mountain flowers are good, quality fine. Alfalfa is good. Many bees were lost on account of disease, so that there are fewer colonies this year, but a better yield per colony. The yield probably averages 100 lbs. per colony. The market is weak, the demand poor, and prices low. Comb-honey prospects good, but not estimated yet.

Los Angeles, Cal., July 19.

In immediate vicinity of New York city, honey crop is good from apple-blossom and locust, both comb and extracted. White clover is reported a failure owing to drouth. Recent rains have improved conditions. Clover, basswood, and sumac are now yielding well. Connecticut reports indicate crop as good as usual.

New York, July 20.

Bees built up well on fruit-bloom. There was a very light flow from locust and white clover, and there was also considerable honey-dew. Drouth cut sweet clover short. Average about 40 lbs. extracted per colony, and of poor quality. Last year the average was 90 lbs., principally extracted, for this section, Jefferson Co., Ky.

Louisville, Ky., July 19.

In southeastern Idaho the early spring weather was unfavorable. Present weather conditions are excellent. Honey-flow now on in full blast. Estimated yield from 9238 colonies, 10,000 cases comb and 470,000 lbs. extracted, all water-white sweet clover and alfalfa. Average, 70 lbs. per colony—twenty-five per cent over last year.

Idaho Falls, Ida., July 18.

We have conversed with beekeepers who say they cannot give an intelligent or accurate report for thirty days. Harvesting is late in this high altitude. Last year's crop in Montrose County was about 10,000 cases of comb. Not much extracting is done. Present indications are for a medium crop, but favorable conditions for the next thirty days might mean a normal crop.

Montrose, Colo., July 18.

Colonies strong. White and alsike about over. Sweet clover at best. With continued good weather the yield will be about average; too early to make a definite estimate. Crops double last year's yield, owing to increase in apiaries. This locality produces about equal extracted and comb.

Twin Falls, Ida., July 20.

Latest returns from Pennsylvania, Delaware, New Jersey, and Maryland show that recent rains have started nectar in white clover, and the bees are again at work. A large percentage of that gathered through fruit-bloom was consumed in brood-rearing. The present flow will be used in brood-nests. In some locations there is a little surplus from fruit-bloom.

Philadelphia, Pa., July 18.

EXTRACTS FROM LETTERS AND POST CARD REPORTS ON HONEY CROP PROSPECTS

Dry weather cut the crop in two; only one rain in eight weeks.
Helena, Ark., June 24.

Excessive heat and drouth; only half a crop, and no prospects for a fall crop.
Cochrane, Ala., June 22.

The honey-flow is at a standstill on account of extreme heat and drouth; only a small surplus.
Munford, Ala., June 26.

The local drouth is fearful. Bees are consuming the first crop.
Florence, Ala.

A severe drouth has lasted here over seven weeks; honey crop is short. There is much sweet clover, and it is standing up well so far.
Forkland, Ala., June 27.

Plenty of white clover in bloom, but bees are not working on it yet.
Danbury, Ct., June 22.

Conditions here could not be worse.
Dickson, Cal., June 26.

The honey crop is not up to expectations because of a cold May and June.
Newhall, Cal., June 27.

Bees are doing well just now. The prospects are bright for a good crop. Alfalfa and sweet clover are just coming into bloom.
Durango, Col., July 1.

White clover is dried up by drouth.
Winnemac, Ill., June 25.

No clover honey. Bees are starving.
Jerseyville, Ill., July 7.

White clover was killed last fall; no rain here since April 22; prospects for fall are very poor.
Percy, Ill., June 24.

White clover is a failure. Bees are storing from sweet clover; prospects for half a crop.
Flannigan, Ill., July 9.

No honey so far, and none in sight; drouth last season and this one. All clovers and wild honey-bearing plants are killed outright.
Deer Plain, Ill., June 25.

Bees are doing finely; clover not quite as plentiful as last year because of wet weather.
Galesburg, Ill., June 26.

The white-clover crop is a total failure throughout Madison Co.; poor prospects for a fall crop.
Edwardsville, Ill., June 22.

The clover honey crop is a failure; no rain for three months; crop prospects are bad for a fall flow.
Pittsfield, Ill., July 6.

Clover is a complete failure; no rain since the first of April.
Decatur, Ill., July 2.

Hot and dry. We shall probably have to feed unless relief comes soon.
Mechanicsburg, Ill., June 27.

White clover is almost a failure, because the weather is very hot. Bees are doing fairly well on sweet clover.
Minooka, Ill., July 14.

No white clover this year, because drouth destroyed the old plants last fall, and the spring drouth prevented the seeds from sprouting.
Nashville, Ill., June 23.

Almost no clover; little honey coming in; sweet clover plentiful, and bees on every frame. The surplus crop will be very light.
Newark, Ill., June 23.

White clover is almost an entire failure because the weather is cold and dry. Sweet clover is in bloom, but the crop will be light.
Hoopeston, Ill., June 24.

No white-clover honey in the central and western part of the State. The drouth last year killed out the white clover; some this spring, and presumably from seed; but this year's drouth killed that out.
Jacksonville, Ill., June 22.

The white-clover honey-flow is exceptionally good.
Harlan, Ia., June 27.

Plenty of clover and basswood in full bloom; lots of rain, but not much doing in supers.
Marshalltown, Ia., June 25.

White clover is coming on very thick. Prospects are good.
Onslow, Ia., June 29.

White clover was nearly all killed by drouth last fall.
Shellsburg, Ia., June 23.

Basswood is promising; plenty of rain, but the hives are light.
Strawberrypoint, Ia., June 22.

White clover is very abundant; also considerable alsike; rains are frequent. Bees are doing well. Basswood promises a heavy bloom.
Edgewood, Ia., June 25.

No surplus honey this year. Prospects were good the first of June; but clover dried up because of no rain.
Mitchellville, Ia., July 10.

Less than one-fourth of an average clover crop.
Valparaiso, Ind., July 8.

The honey crop is a complete failure.
Indianapolis, Ind., July 7.

Bait sections will be abundant for next year; normal prospects for fall crop.
Elkhart, Ind., July 9.

The honey crop is a failure so far this year. We are having to feed.
Franklin, Ind., July 6.

Clover is a failure. The drouth last year killed practically all the young clover; no surplus, and basswood just closing.
New Ross, Ind., July 4.

No white-clover honey; small yield from alsike, linn, and berries; no surplus so far; little prospect for a fall flow.
Lebanon, Ind., July 2.

The honey crop is a complete failure; no surplus.
Brookville, Ky., June 26.

No white clover, because of drouth; sweet clover is coming on.
Hiawatha, Kan., June 23.

Conditions are bad; sweet clover not as abundant as usual.
Merriam, Kan., July 9.

White clover died out last summer. Bees did very little until June 15 on yellow sweet clover and milkweed.
Ionia, Kan., July 1.

Clover is practically a total failure. Plants are parched by a fearful drouth.
Walton, Ky., June 24.

Clover honey is a complete failure. Honey-dew kept bees from starving. Prospects for aster honey are very good.
Elkton, Ky., June 23.

The honey crop is poorest in years; scarcely any white clover; heat and drouth severe.
Dry Ridge, Ky., June 25.

Clover is a total failure. Bees will need all they can get to last until aster, which looks very promising. We are still having dry hot weather.
Brooksville, Ky., June 26.

We have had no rain since May 4. Bees get hardly enough to live on. The crops are burning up; very little tobacco is planted; only chance for honey is from boneset in September or October; few rains.
Kevil, Ky., July 7.

We have a nice little lot of white-clover honey.
Alexandria, La., July 1.

More honey to date than for several years.
Lyonsville, Mass., July 3.

Very little white clover, but conditions are just right for cranberry.
East Dennis, Mass., June 29.

The first half of the season was good, the last half bad; half a crop.
Aikin, Md., July 8.

Clover is all dried up; had a good rain, which will help the second crop.
Towson, Md., June 27.

Bees are doing finely.
Reading, Mich., July 13.

Rather light crop in northern Michigan; 60 lbs. per colony of extracted honey from raspberry.
Mancelona, Mich., July 7.

Since our last report bees have done well on basswood; will probably get a fair crop; probably 50 acres in Canada thistle within a mile and a half of my bees.
Clayton, Mich., July 15.

Every thing is drying up; bees are doing nothing.
Frederickton, Mo., June 29.

No clover nor any thing else; am feeding.
Strafford, Mo., June 23.

No white-clover honey because of last fall's drouth.
Unionville, Mo., June 22.

Excessive rains have prevented the bees from doing much.
Blooming Prairie, Mo., June 30.

No clover; drouth and hot weather are excessive. We shall have to feed.
Durham, Mo., June 28.

The honey crop is a complete failure. We have been feeding three weeks.
Hendland, Mo., July 8.

No clover honey; bloom scarce; weather too hot and dry; hoping for a buckbush crop.
Springfield, Mo., July 7.

Very dry; clover no good; no honey in the hives. Basswood has been yielding the last few days.
Grant City, Mo., June 24.

This is a clover and basswood locality; no surplus, and bees will have to be fed for winter.
Janesville, Minn., July 7.

About one-third the usual amount of white-clover bloom; but we have had continuous bad weather.
Swanville, Minn., June 23.

White Dutch clover not blooming, owing to drouth in southern Minnesota. We get most of our honey before Aug. 1.
Valley River, Minn., June 15.

Bees were on the verge of starvation until basswood, and only a light yield from that. The fields are white with clover; but continuous rains in June prevented any yield of nectar.
Excelsior, Minn., July 10.

No surplus clover honey; not one clover-blossom to the acre; army worms cleaned up the meadows, and a drouth of three months has ruined small fruit. Clover is scarce.
Richmond, Miss., June 24.

Alfalfa is yielding well; weather dry and hot.
Cozad, Neb., July 7.

Prospects are very good; hives well filled, and bees working nicely; abundance of sweet clover which promises to last well and to give a good crop.
Omaha, Neb., July 7.

White clover is very nearly a complete failure, as it is too dry. But we have had rain lately, and expect a fall flow from smartweed and wild flower.
Elk Creek, Neb., July 6.

Because of last year's drouth there is no prospect of any surplus from any source in southeast Nebraska. Conditions are getting worse, because it is too dry.
Humboldt, Neb., July 4.

We have two-thirds of an average honey crop; not over half an inch of rain in eight weeks.
Cooleemee, N. C., July 1.

Early honey is scarce; little clover and much dry weather.
Pittsfield, N. H., June 29.

No clover honey; hoping for a fall crop.
Salem, N. J., June 29.

White clover has yielded no nectar. June was cold and rainy.
Hillsdale, N. J., July 1.

Clover is a total failure. Hot weather and drouth cooked the clover.
New Egypt, N. J., July 10.

This is the poorest season in 15 years. The early crop is a total failure in central New Jersey. Drouth and cold winds finished the clover in a week; no surplus.
Frenchtown, N. J., June 26.

All the beekeepers in the valley have a fair crop if they take off what honey is in the hives now, and the bees fill up with stores for winter. Bees are doing well now.
Mesilla Park, N. M., July 5.

Clover is scarce and foul brood plentiful.
Himrod, N. Y., June 24.

Bees are doing nothing on white clover, as it is too dry and cold.
Ballston Spa, N. Y., June 22.

White clover is a complete failure because of drouth. Colonies are strong, but just enough honey in the hives for brood-rearing.
Sherman, N. Y., June 25.

Clover is scarce, and not much honey. Every thing dried up last year; can't tell what basswood will do.
Black River, N. Y., July 9.

The raspberry crop is good. The clover season was very short because of cold cloudy weather. It is too early to report on basswood.
Triangle, N. Y., July 8.

The white-honey crop is nearly a failure; average of 25 lbs. per colony. Buckwheat looks promising; will move 300 colonies next week.
Clarksville, N. Y., July 10.

The white-honey crop is not over 10 lbs. per colony; prospects good for buckwheat; excessive swarming.
Homer, N. Y., July 17.

White clover is scarce, sweet clover plentiful. More buckwheat will be sown than usual. No honey crop in sight.
Catskill, N. Y., June 30.

Too dry for clover; prospects good for a fall flow.
Frost, O., June 26.

The honey crop is a complete failure.
Cleveland, O., July 15.

Very little clover and no honey.
Columbiana, O., July 4.

The honey crop is a failure because of great drouth.
Miami, O.

White clover is scarce. Bees are doing very little on alsike.
Blacklick, O., June 25.

Too hot and dry for white clover; honey prospects not favorable.
Jacobsburg, O., June 22.

Bees are doing finely, and everybody is busy trying to keep up with them.
Defiance, O., June 18.

White-clover honey is scarce. Where alsike is plentiful bees are doing well.
Bellevue, O., June 26.

Plenty of white clover, but no nectar. A little surplus is coming from motherwort.
Somerton, O., July 5.

Plenty of white clover, but the honey yield is a complete failure; clover parched.
Ashtabula, O., July 11.

The honey crop is a total failure; no surplus; shall probably have to feed for winter.
Harrison, O., July 10.

The honey-flow is a failure here. Dry hot weather spoiled the clover; basswood looks fair, but is not out yet.
Newton Falls, O., July 2.

Practically no white clover, as it is very dry. Bees have been working well for the last two or three days on basswood.
Negley, O., July 7.

Honey came rapidly the first week in June ; by the 15th the weather was too dry, and bees were running off their drones. About the 20th the bees began working again on linn and clover, which are still yielding, although the weather is very dry.
Wilmington, O., June 23.

Conditions were good up to the opening of clover. Fruit and locust yielded well, some of the latter going into the supers during clover bloom on a day when the weather was right. We have had extreme heat and unseasonable cold. Sumac and clover are yielding rapidly now. We may get a fourth of a crop.
Duncan Falls, Ohio, July 8.

The prospects for honey are slim; too cold and dry.
Toronto, Ont., June 22.

Clover is a total failure. If it does not rain, basswood also will fail to yield.
Milzmay, Ont., July 13.

The clover crop is a total failure in this part of Ontario.
Mt. Joy, Ont., July 6.

The honey crop is a complete failure so far, though we are hoping for something from basswood.
Adelaide, Ont., June 26.

The crop in southern Ontario is almost a total failure. Bees are killing off the drones; very little clover; weather very dry.
Whitby, Ont., June 27.

Fearful drouth; clover all dried up.
Fenelon Falls, Ore., June 25.

Not much honey coming in; have had to feed some.
Guelph, Ont., June 25.

The clover crop is a failure so far; may get some yet if the weather is favorable; secured half a ton from apple bloom.
Oshawa, Ont., July 2.

Clover is a clean knockout; basswood more than half over; 4 lbs. the best gain in a day so far.
Ailsa Craig, Ont., July 17.

The weather is too dry; no honey.
Monongahela, Pa., June 23.

Clover flow is light—none coming in at present.
Decatur, Pa., July 14.

Clover is nearly all dried up. This is the third year of drouth for this section.
Michael, Pa., June 23.

Not as much white clover as last year; wet spring but a dry June.
Pottstown, Pa., June 30.

No white-honey crop; too hot and dry, and, later on, too cool.
Pipersville, Pa., June 22.

No white clover, as it is very dry. There will be some buckwheat.
Elkland, Pa., July 13.

Locust yielded fairly well; white, red, and alsike are almost burned out of the ground. We have just had rains which may help.
Cochranville, Pa., June 27.

Drouth the last of May and fore part of June resulted in a serious shortage of surplus. Recent rains revived clover, but no nectar.
Doylestown, Pa., June 29.

Clover is great, and the prospects are good for a splendid honey crop if it will only stop raining.
Sioux Falls, S. Da., June 29.

Almost no surplus from white clover. We are hoping for a surplus from asters in the fall.
Aspen Hill, Tenn., June 24.

All colonies two-story in fruit-bloom; great profusion of clover now, with sultry weather and plenty of rain. Honey is just rolling in. Basswood promises well.
Derby, Vt., July 10.

Plenty of clover; good flow of nectar, but no good weather; rain almost every day.
Forest Junction, Wis., June 26.

Lots of clover in bloom. Bees are working well when the weather permits.
Stockbridge, Wis., June 23.

The honey crop is good so far this season—rather above the average. Prospects are good for a late yield.
Webster Springs, W. V., June 28.

Heads of Grain from Different Fields

THE BACKLOT BUZZER

When a bee stings a beekeeper, it isn't news; but when a beekeeper stings his bees, it is. Speakin' of foul brood, any man who permitted it to thrive in his hives would give a dog hydrophobia if he bit the dog.

Imbedding with the Wires Slightly Loose

H. H. Root, in his article on "putting foundation in wired frames," in GLEANINGS, Nov. 15, 1913, says: "It is not an easy matter to imbed wires out of line." Then editorially, in the Jan. 1st issue, this statement is made: "Some of our readers got the idea that the wires in the frames are loose." Mr. Root is right as to the difficult "cross-grain" imbedding; but I don't imbed them that way. I imbed them practically wholly in a straight line, but have the wires slightly loose, as some of your readers suppose. How do I do this? By taking hold of the wire about two inches from the end of the frame, and pulling it down or up as required about ⅛ of an inch, and imbedding this short angle, then reaching across to the other end of the frame, and pulling the wire down or up like the opposite end, so that the greater part of it follows an exact line of cells, where it is then imbedded, finishing up last with the remaining bend.

Doubtless many apiarists have seen enough of "buckled" brood and extracting combs (I have) to have been glad to exchange them for straight ones with a ten-dollar bill. Foundation expands with heat; and the reason horizontal wiring came to replace vertical wiring is because the lesser distance, number of wires, and length of wires, permitted of some "give" or "go" with the expansion. But in our wire-imbedding we did it thoughtlessly, accidentally deviating the right way as well as the wrong way when we didn't go straight. Then when we deviated the down way with the lower wire, also perhaps hiving an extra-strong swarm, with, too, a series of extra hot days at hand, we would get *buckling to the extreme.*

And we should remember that "buckling" is not the only thing to look out for. While the lower edge of the foundation gets none of it, the upper part gets full; and the weight of the bees sometimes stretches the cells adjacent to the top-bar into a size in which drones will be raised if we do not take precaution against it in the low imbedding of the upper wire.

Sterling, Ill., April 1. A. B. ANTHONY.

[It is well to bear in mind that a comb stretches somewhat after it is drawn out. Ordinary combs, especially naturally built store combs, will generally stretch slightly on a vertical line after being filled with honey. The period of storing is usually during hot weather, and as the ventilation of the hive is not always perfect, the entire temperature of the hive will rise slightly above normal, if the hive is not shaded. The result will be that the new comb will stretch slightly. We have never seen any evidence that combs stretch after the first year. Wiring, either vertical or horizontal, tends to check the stretching afer the combs are built; but vertical wiring will correct this tendency more than horizontal. But a vertically wired comb will be wavy, while a horizontally wired one will be as flat as a board. The reason for this is that foundation, in the process of drawing out, expands both vertically and horizontally. The sag of horizontal wiring takes care of the sag of the comb downward, and the wires prevent lateral expansion, leaving the surface smooth.—ED.]

Introducing by Smoke Method to a Laying-worker Colony

In regard to the smoke method of introduction, I introduced three queens the first part of March, two to laying-worker colonies and one to a colony having capped brood. The queens were accepted, and were laying in four days in the colony; have capped brood and one laying-worker colony, while the one in the other laying-worker colony was killed and dragged out after the fourth day. This is my first experience in introducing in any way.

I have always been told that bees do better if set in the sun, but I have my doubts whether it will work here or not in this part of the country, as the temperature reaches 120 degrees in mid-summer.

Our bees are in Langstroth hives with Madary ventilated covers. By giving ventilation at the bottom along with the ventilated covers, would it also be necessary to provide shade in the heat of the summer? and how much heat will combs of brood stand covered with bees?

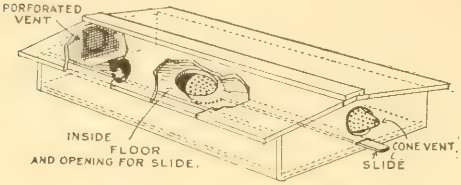
There was some discussion as to chico or greasewood, it being the last plant in the fall from which bees gather pollen. They will be seen working on this as late as the first week in November.

Las Vegas, Nev., March 18. J. M. MILLER.

[The ventilated cover with ventilation at the bottom might not be sufficient to keep the bees cool in some parts of California. The Arizona plan of shading, as illustrated in the A B C and X Y Z of Bee Culture, would be an excellent one to use. It consists of a long shed having a roof of dried grass and weeds. This is held down by wires stretched over the top. This shed should run directly east and west, and the hives should be placed under it in two rows with the entrances facing outside. In this way the hives will be shaded all day.—Ed.]

A Combination Cover

The cover shown in the accompanying illustration has many advantages over the old-style cover that more than compensate for any additional cost of construction. It was my idea to afford a complete and thorough system of ventilation and to decrease the time necessary to empty the super of bees.



The general construction of the cover is on the same principle as that of a gabled house—peaked roof and flat floor. The bee-escape from the super is a hole cut in the center of the floor that is arranged with a sliding cover, perforated so as to permit a free passage of air, and is attached to a strip that extends to the front end or gable of the cover. This strip is placed in a slot, which makes it possible to open or close the escape by simply withdrawing or inserting the strip. The escape is of sufficient size to permit emptying the super in three or four hours, whereas it usually takes twenty-four hours. There is a ventilator in each gabled end, one being cone-shaped, and acting as an escape from the cover. A beekeeper who had been troubled with his foundation in the brood-nest melting during the hot summer months, with the old-style cover, gave this cover a severe test, and declares that this system of ventilation is the best he has ever seen.

Where it is found necessary to feed the bees, the feeder may be placed under the roof of the cover. Opening the escape from the super the bees may enter the cover, and feed, and return to the hive. Closing the gable escape insures against theft by "robbers," and keeps the home bees from leaving the hive.

Altoona, Pa., Feb. 2. Matthew Kearney.

[Except for the bee-escape feature and floor of the cover proper, the style here shown is quite old. If the two gable boards are made of ⅜ lumber, as we presume they are, to reduce weight, they will give trouble. We have discarded from our own yards several hundreds of this type of cover. The ⅜-inch board will shrink and split as well as curl up, and such a cover will always leak if given two or three years of usage, out in the open. The only satisfactory way to make a double cover like this is to use metal or paper to cover the whole top. In fact, good roofing-papers, if carefully used, will do good service for ten or twelve years.

Our correspondent does not explain how he puts the feeder into this cover. In the absence of any statement to the contrary we will assume that the floor is removable in some way. The plan of having cone escapes on the end of the cover is not new. It has been used very largely on this type of cover.—Ed.]

Why the Paint Blistered on the Hives

I have had your double-wall hives out of doors for several years—three winters, to be exact. This spring I found the paint on the outside of all the hives had blistered. The natural explanation would be that the moisture traveled through from the inside. Do you think this possible? Have you any explanation to offer regarding this condition? The hives were sheltered from moisture during the winter, as they had a frame, at least 8 to 10 inches away from them on all sides, of black building-paper stretched on a wooden framework, and I am at a loss to understand why this should happen. The dampness on the ground underneath certainly would not cause this. The hives have been painted every year, but this moisture is between the bottom coat of paint and the wood.

FEEDING ARTIFICIAL POLLEN.

In regard to spring feeding, last spring I fed the bees one-third flaxseed without oil, one-third graham flour, and one-third rye flour. The flaxseed seemed to draw the bees, as they did not take kindly to the pollen until this was put in. However, when the flaxseed was added they took it up in bunches. I put a small tin pan in the hive, 4 inches in diameter and ⅜ deep, and found they took it up much quicker this way than if placed outside. Besides, they could get at it in all kinds of weather.

New York, N. Y. M. J. Kaufmann.

[It is hardly possible that the moisture from the cluster of bees would pass through the inner wall of a double-wall hive, through the packing material, and then again through the outer wall. In fact, we would say it is utterly impossible. The explanation for the paint peeling off is probably due to the fact that the wood of which the hive was made was not entirely dry, or had become damp through exposure to moisture. Again, the paint might be at fault. Many of the cheap ready-made paints contain fish-oil or an inferior grade of linseed oil. The oil itself is the medium for holding the paint on to the wood; and the oil, if in any way defective, would account for your trouble. But in most cases the blistering is due to an excess of moisture in the wood.—Ed.]

Some Questions

The spring flow here has been a failure. I have 75 colonies of bees, and harvested about 200 lbs. of surplus.

1. Will it do to divide the colonies for increase? There do not seem to be many drones flying. The bees are killing and driving them out.

2. Will they have time to build up for the fall flow which begins about the last of July or first of August?

3. How much sugar will it take to build up each colony? I want to divide each colony once. What is the best method?

4. I have no queens to give them. They will have to raise their own. In that case would you advise me to divide? They are very populous colonies?

I like bee culture, and am going to devote all my time to it when I have enough colonies.

Uniontown, Ky., June 15. J. C. Lineback.

[1. Since you have fall honey-flows it will be safe for you to divide or increase. As soon as increase is made, begin feeding a syrup of two parts water to one part granulated sugar at the rate of about one pint daily per colony. This can best be done by the use of the Boardman entrance-feeder, and should be kept up until the fall flows begin.

3. The amount of sugar which it will take for each colony depends so much upon conditions that it is very hard to give you an estimate. For the periods during which you feed for stimulation you should count on not less than four ounces of sugar per day for each colony. After the honey-flows come on it will not be necessary to carry on the stimulative feeding, and later in the fall, after the flowers are all gone, if the bees have not gathered sufficient to carry them over winter you will need to feed for that purpose. The Alexander plan of increase and "shook" swarming are the two most popular methods used. We can recommend either one.

4. The divided colonies will raise queens of their own; but you can not expect queens raised under such circumstances to be as good as when better methods are used. Your best plan would be to take one of your strong colonies and rear the queens that you need by some modern method.—Ed.]

A. I. Root OUR HOMES Editor

Butter and honey shall he eat, that he may know to refuse the evil, and choose the good.—ISA. 7:15.

AN ADDRESS DELIVERED BEFORE THE OHIO STATE BEEKEEPERS' ASSOCIATION ON FIELD DAY, JULY 9, 1914.

Perhaps, friends, I should make a little apology for this long story, and explain that at different times before the affair came off Ernest kept suggesting different points that I should touch on. I warned him that my talk would have to be a long one if I put in what I had planned and also the matter he suggested. But he remarked that a good many of the friends had come from a distance, and that they would be very glad to listen as long as I kept on talking. Perhaps I might explain that the speech was delivered in one of our warehouses. Seats were improvised of boards from the near-by lumber-yards, resting on boxes of sections. As the weather was very warm the windows and doors were, of course, all wide open. My remarks were as follows:

I want to remind you, friends, that it is a little bit dangerous to ask an old man like me to talk. Old men are prone to be lengthy, especially when invited to take all the time they wish. Before starting, I wish to mention a little story I read somewhere recently. A young man was preparing to go out as a foreign missionary—I think it was to South Africa. He was very enthusiastic about it. Some of the older and more experienced men tried to explain to him the hardships and difficulties. One of them remarked, "My young friend, please consider that down there sometimes the temperature goes up to 110 degrees in the shade."

Our young friend replied, "But you don't have to stay in the shade all the time, do you?"

Now, this incident illustrates two points: First, that you, my friends, do not have to stay "in the shade;" for at any time you can get up and go out of this wide-open door whenever you are tired and feel uncomfortable. Second, it illustrates the *enthusiasm* with which I began bee culture. Standing here before you I confess I feel a little proud of the fact that I can remember quite distinctly things that happened over 70 years ago. Some of the older men may remember that long, but the ladies rarely remember things that happened over forty or fifty years ago.

It was very nearly 75 years ago when I was born in a log cabin two miles north of where we now are. My mother used to say that I was always curious about every thing that is going on and to be seen, even in my infancy. As soon as I could talk I asked more questions in an hour than our family and all the neighbors could answer in a week. There were seven of us children—three younger and three older. When I could get outdoors I was still more curious and inquiring. The older children had much to say about the town of Medina and its people; and I teased so much that when I was four years old I was permitted to go to town with father in a big double wagon. It was all woods then on both sides of the road. The roads were muddy, and full of the roots of trees, and it was a remarkable experience of my early life. I especially remember the boxes of honey that were in that lumber-wagon. Father was a carpenter, and had made some very neat boxes of thin lumber; and when we reached town and he pried off the tops of the boxes, the crowd that gathered around the wagon very soon paid his price and cut the honey out in chunks. Before going home he was obliged to go to the blacksmith's. The first words from the smith were, "Brother Root, I suppose you have got that honey you promised me?"

Father replied, "Why, did I promise you some honey?"

"Certainly you did," said the smith, as he looked over the wagon. "You have not gone and sold it all, have you?"

Father replied that he was very sorry, but he had forgotten all about it; and when the smith asked him if he could not bring some later, father said there would not be any more that season. I remember the smith then took out of his pocket the biggest jack-knife I had ever seen. It had a long bright blade. He pried off the top of a box and scraped off some of the honey still sticking to the board. I remember how he smacked his lips and expressed his regret that he could not have some of that nice honey. I felt sorry for him then, and, my good friends, I have been sorry for that poor blacksmith for *over 70 years*; and I am sorry now, not only for the smith, but for everybody else—men, women, and children—who cannot have God-given honey to go with their daily bread. "Milk and honey shall he eat, that he may know to refuse the evil, and choose the good."

I think there must have been quite a few people who wanted *more* of that nice honey. Very likely it was basswood honey, because there were more basswoods around our forest home than there were of fields of white or red clover at that early date. Somebody suggested that if father would *brimstone* his bees he could have a good lot more of that nice honey. I believe it is quite out of fashion now to brimstone bees to get the honey—at least I hope it is; and I have protested against this cruel and foolish practice for the past 70 years. It is like killing the goose that has laid a golden egg. But as it was to be done I was very eager to be a witness to the operation; but I had just had a spell of what the doctors called in that early day lung fever; and our doctor said the day before that I would have to be kept indoors close to the big fireplace. He said I must not even be permitted to *look* out of doors. As it was near winter time there was a little snow on the ground; but in some way or other when they were busy getting their pans and kettles ready to put the honey in I slipped out of the door that did not happen to be latched. I got up to the crowd around the hives, and then stubbed my toe and fell over with my bare hands sprawled out in the snow; and there my good mother found me and grabbed me up quick. She put me in a chair by the fire; and to keep away drafts they hung blankets on three sides of the big rocking-chair where I was laid on pillows. The doctor was sent for, and later another doctor, and finally a third one. But I went down so rapidly after falling in the snow that all three doctors gave me up. They told my poor mother that there was no hope; and when I had almost ceased breathing they gathered up their medicines and went away. My good mother (bless her memory!) had faith to believe that the great Father above was not only above and beyond all doctors, but she had faith to believe that he *hears* and *answers* prayer, even though that prayer be breathed in the humblest log cabin away back in the woods. For some time I hovered between life and death; but the untiring mother pulled me through. Some one asked which one of the three doctors saved my life. The reply was, " It was none of them—it was no doctor at all. It was the untiring mother and a mother's prayers." May God bless the faithful, patient, Christian mothers of our land. And may God be praised that our good President saw fit just recently to appoint one day in the year as " Mothers' Day."

When I was old enough to remember the incidents of my early childhood I wanted some bees; but father always declared they did not pay for the fuss and bother. Besides, they would sting. After I was married I told the good wife that we would have to have some bees; and after visiting a friend of mine who was a doctor, and seeing some hives of bees in his pretty garden, I was more determined than ever to have some bees of my own. His bees were working in boxes that had glass ends so one could open a door and see them build new combs and deposit the honey in them. I think that at this time I was 25 years old. I was fairly successful as a jeweler and watch repairer. I also did quite a good business in manufacturing silver chains and rings for the soldiers, for there was a craze for such jewelry at the time the war broke out.

While we were busily occupied one summer day, one of the hands, looking out of the open door, said, " There goes a swarm of bees." My partner in business, W. A. Shaw, having heard me express a wish to get some bees, looked up jokingly and said, " Mr. Root, give me a dollar and I will get them for you."

To carry on the joke I put my hand in my pocket and happened to get hold of a silver dollar and gave it to him. He darted out of the door with a rush. I had so little faith, however, that I forgot all about it. But I remember he came back a few minutes later and set a box down, saying, "Mr. Root, here is your swarm of bees." I could hardly believe it possible that he had caught them from away up in the air, and persuaded them to go into that box.

" Why, Mr. Shaw, how in the world did you get those bees up in the air, and induce them to go into that box? "

He jestingly replied, " Oh! that is a *five-dollar secret.*"

As he did not seem inclined to explain I went on questioning the bees. They did not fly out much that day; but next morning before daylight I was watching them; and I watched those bees and experimented with them until they got out of patience, I presume, and " absconded " the *second* time. But this event by no means dampened my enthusiasm. I found a neighbor who was willing to sell a colony of bees. We tied a rope around the hive and put a long pole through the rope. A friend took one end while I took the other one, and so we carried them home.

One morning I told Mrs. Root that I had important business in Cleveland, thirty miles away. She supposed it was something connected with the jewelry business; but it was really to get to the bookstores and hunt up whatever I could find on bees. In those days it took a whole day to go to Cleveland in a stage coach, and another day to get back. We did not have railways, electric cars, nor automobiles. The mud was often so deep that it was dark before we reached the city.

I found in the bookstores three good-sized books, Langstroth, Quinby, and a book by T. B. Miner. I selected Langstroth, and sat up pretty much all night at the hotel reading it; and I cannot remember that I ever got hold of any thing that gave me such keen pleasure and enjoyment as Langstroth's wonderful revelation of the mysteries of the beehive. Years before, I had read Robinson Crusoe with much interest and enthusiasm; but now, I had really *found* "truth stranger than fiction." Very soon I selected all the agricultural papers that had articles on beekeeping; and my good sister, who was clerking in the jewelry store, told my wife that it was really too bad the way I "pumped" every old farmer in regard to what he knew about bees. She said that after they had given me all the information they possibly could they looked so wearied and troubled and evidently wanted to get away, she really felt sorry for them.

I soon got in touch with Mr. Langstroth, and in that way found out about the Italian bees; and I also learned that a bee-journal had been started and kept going for three years, but it had gone down for lack of patronage. I scraped up acquaintance with Samuel Wagner, the editor (another of God's noblemen), and by my enthusiasm induced him to *recommence* (at Washington, D. C.) the publication of the *American Bee Journal.*

Mr. Langstroth had just one imported Italian queen. In answer to my importunity he agreed to let me have her for $20.00. By this time many of my friends began to be worried because I was neglecting business to fuss with bees. When it was noised abroad that I had actually paid *$20.00* for one single *bug* my friends thought that this capped the climax, and that I was certainly going "daft" over the little insects that everybody *knew* did not amount to any thing. Our express matter at that time came from Cleveland over the stage route I have mentioned. When it was time for the stage to come in one afternoon, that would probably bring my queen, I was on the watch looking away off over the hills for the first glimpse of the stage coach. It finally came up; and when I asked the driver for my queen he came up to me leading a puppy with a chain. Then the crowd that was waiting began to laugh. I remonstrated, saying that that animal was not a queen-bee by any means; but he declared that the playful doggie must be *it.* I went into the hotel office and asked if they had not received a little package for me. When the landlord said that the dog was all, I was mad. Just as I was going out of the door, however, the landlord said, "Hold on! there is a little box here of something;" and that little box contained my queen-bee. Oh how I did love those little yellow beauties, as gentle as kittens! and the long yellow queen was to me then almost the dearest thing on earth.

Let me explain about that dog "Jip." He was one my brother-in-law, who was somewhere in the South, in the United States army, had sent. Jip was soon such a favorite, not only with our family but the whole town, because of his cute tricks, that I got over my prejudice against dogs, and that particular dog in due time.

By following instructions in Langstroth's book I soon had a movable-comb hive, and the bees were safely transferred, and the $20.00 queen introduced. When somebody told me that Mr. George Thomson, living down by the river, about three miles away, had a dooryard full of Langstroth hives I dropped my jewelry tools in a hurry, rushed to the livery stable for a horse and buggy, and, sure enough, there were a dozen or more Langstroth hives just like those in the book. From that time forward Mr. Thomson and I were close friends, you may be sure.

About Thanksgiving time he came up to get a look at my $20.00 queen—the first Italian bee ever brought to Northern Ohio. Now, I had taken brood from that colony to put into an observatory hive, and fussed with them until there was not very much more than a pint of yellow bees left; and when Mr. Thomson declared the whole colony would freeze up before Christmas in spite of any thing I could do, I was thoroughly alarmed. He told me I had better get one of his strong colonies and introduce my queen, and she would then be reasonably safe. I traded him a watch for three hives of bees; and although that was about fifty years ago, his wife showed me the same watch only a few days ago.

The next spring, bright and early, I was at work with the bees. I had so many nucleus hives started by dividing and subdividing that Mrs. Root said she was afraid to pick currants for fear there would be a little swarm of yellow bees on almost every bush. I think it was the first season after that when I secured nearly a barrel of honey (using a home-made extractor) from one hive of bees in one summer.

To be continued

THE MOON AND PLANETS; THEIR EFFECT ON THE WEATHER, ETC.

Pretty much all of my life I have labored more or less to convince people that neither the moon nor the planets have any thing to do with the weather, vegetation, nor insanity. When a series of experiments, covering many years, conducted by the Weather Bureau, declared again and again that careful observation gives no ground for such beliefs, I was greatly pleased. Some of our older readers will recall that when Hicks came out in his journal with elaborate pictures of the heavenly bodies to explain his weather predictions I denounced him as a fraud. I do not know whether Hicks is still trying to delude people with his diagrams and unscientific talk again or not. I have neither seen nor heard any thing of him of late. Below I clip from the Cleveland *Plain Dealer:*

BRANDS ASTROLOGY A MYTH.

WASHINGTON, June 18.—Astrology is branded as a superstition by the Department of Agriculture in its current weekly news letter.

The department declared: "The belief, still to be found in all countries, that planets and the moon affect the weather never had any scientific basis. We believe neither the planets nor the moon can have any effect, because they furnish so little heat, upon which all weather changes ultimately depend."

The next day after, they gave us the following piece of pleasantry:

The Department of Agriculture comes out with the heterodox statement that the moon has nothing to do with the weather or the success of crops. It's an iconoclastic age we live in. The next thing you know, the Department will be saying that rheumatism can't be cured by carrying a buckeye in one's pocket.

Some of you may suggest that the Weather Bureau may be *mistaken;* but I think no one (who is at all reasonable), after looking over their carefully kept records for years, will refuse to admit that they are quite right. Perhaps we shall have to wait until some of the popular notions of years ago have entirely died out. Curing rheumatism by carrying something in the pocket, or a cheap iron ring worn on the hand, warding off disease with a horseshoe nailed over the door, etc., are exactly in line with the venders of Electropoise, Oxydonor, and a whole family of similar swindles, working on people's credulity and imagination, until they are induced to pay $25 for a mere toy that costs only 25 cents, and cures the ailing *exactly* as a horseshoe cures by being nailed over the door.

HIGH-PRESSURE GARDENING

DASHEENS UP TO DATE, ETC.

I have been wondering that so little is said just now, especially in our Florida papers, in regard to dasheens. I clip the following from the *Fruit Trade Journal:*

HAS DASHEENS TO SELL.

CHULUOTA, Fla.—The acreage of dasheens in this section of Orange County is larger than usual, and farmers are much interested in the outcome of the deal. Lawrence Swanson, a leading grower, is anxious to make arrangements with some merchants in New York and other seaboard markets, to handle his crop.

A little later I shall expect to get postal-card reports from a good many of the friends to whom we have sent tubers. Our dasheens here in Ohio are now growing rapidly; but the weather was so unfavorable that we did not get them planted very early. We are to-day, July 18, mulching them with old well-rotted stable manure. Some of them are now two feet high, and growing rapidly.

DASHEENS, ETC., IN OUR FLORIDA GARDEN.

While we are talking about dasheens, you may be interested in the report below, just received from our colored friend Wesley Welch, who has charge of the place in my absence:

Mr. Root:—The dasheens by the mulberry are five feet high. The millet is ten feet high. The cassava on the ditch bank is from four to five feet high. I have just worked the place out. It is very nice. The cassava by the alligator's cave, some of it is five feet high. It is certainly a fine patch. The chickens are not laying very much. The ducks are not laying at all, and have not for two weeks. The chickens are looking fine. They are in good shape. We are not having very much rain so far.

I gave Mr. Harrison three African potatoes to send you. That tree that you spoke about has a few fruits on it.

Manatee, Fla., July 14. WESLEY.

Perhaps if I were on hand I could get the chickens to laying better during the month of July; but perhaps not, as they are now nearing the moulting season in the South. Notwithstanding all that has been said in favor of the Indian Runner ducks, I think they have spells of laying little or none at all, even with the best of management.

The new millet he speaks of as being ten feet high is the same as some that I saw that was eighteen feet high at the experiment station in Brooksville, Florida. His closing sentence is with regard to the "Feijoa" sent me by the Government several years ago. It is a new fruit said to be half way between the mango and the guava. It is grown successfully in California, and is said to be liked by everybody, even when first tasted, which is not true of the guava. If I am correctly informed, the tree on my place bearing fruit is one of the first, if not the *very* first to produce fruit in Florida; and on this account it promises to be almost a curiosity.

The African sweet potatoes mentioned above were from the seed sent us by the missionary—see page 471, July 15, 1913. As Bro. Thompson suggests, the potato is by no means "vineless;" in fact, from three small tubers he sent me we have quite a patch, and the vines threatened in April to run all over the garden. In regard to the quality, Mrs. Root thinks it is the finest sweet potato we have ever had, grown in Florida. My only objection would be that it is, if any thing, *too* "sweet."

DASHEENS IN FLORIDA.

We clip the following from the Jacksonville *Times-Union:*

PLANT DASHEENS.

This is a new name for an old vegetable. For countless ages untold millions have lived on the dasheen. It is the "taro" of South America. It will grow anywhere in the Southland the Irish potato grows. It has more protein than the Irish potato has; more starch than cassava (see United States bulletins). At Brooksville, Fla., the United States Government has a large experiment farm where it has given the dasheen a fair trial, and it is a success. It produces from ten to twenty-five tons of tubers per acre.

From one to two tons of cowlot or barnyard fertilizer is best to produce the largest yield. The dasheen will grow on land so sour that it is worthless for ordinary farming. Water may stand on the ground for days without injury to the plant, provided it is drained when the tubers mature. The tops of the plant resemble the "elephant ear," and grow from four to six feet high, returning a lot of vegetable matter to the soil.

The dasheen requires a lot of potash to give best results. Plant about January 4 in drills two feet apart in the row. Cut seed and plant just as for Irish potatoes. It takes less cultivation than for the potato.

It is a great meat-producer. Any food that will fatten meat cheaply will be a boon to the farm. With the dasheen you can utilize the waste swamp and prairie lands, make the waste places furnish meat and other food for the people. Cattle of all kinds are fond of the dasheen.

It can be cooked and eaten in any way that the potato can, and in many ways that the potato cannot be utilized. The dasheen has a nutty flavor very pleasing to the palate. The tender tops are good greens.

Bed out in the sod just as you do sweet potatoes, then cover with four inches of clean white sand, and the shoots are delicious eaten like asparagus. Plant dasheen, kudzu, and Rhodes grass in connection with the other crops, and reduce the cost of living and increase your bank account. The United States will furnish seed and literature free.

DR. G. NELSON DAVIS.

[We understand dasheens will be dug at Brooksville in October. Those who wish to try the culture of this desirable tuber should put in their orders in time, and get seed for spring planting free. The supply is limited.]

The above is mainly correct, so far as I know, except that part about cutting the seed like Irish potatoes. We have always planted the tubers whole; but it may be true that cutting in pieces, especially large ones, they would send up shoots like Irish potatoes. I am now planning to furnish the readers of GLEANINGS, at least those who are paid up (say a year or more ahead) one pound to each applicant who sends the amount of postage. Your postmaster can tell you what amount will be necessary from your locality. The government station at Brooksville, Fla., sends tubers and pays the postage; but if I am correct they are always behind in filling orders, or have been heretofore.

DASHEENS IN CUBA; SOMETHING FROM OUR GOOD OLD FRIEND SOMERFORD.

This "new vegetable" is known here as melanga, and 71 million Americans in "our 21 southern republics" raised and fought on it since their beginning. This proves its value above all other "potatoes," as it is a "tater," and the only one counted on in hot countries where it rains, as it keeps well for three years. Rain daily is the time it grows. Moderately dry weather cuts the crop entirely. It needs much water after it comes up. We have two kinds here—yellow and white. The white is preferred; and for a solid food for a hard laborer nothing, not even corn meal, can beat dasheen. The new plant is as old as Balboa.

Have often thought of you, Mr. Root, and our friend Parson Frazier, of Guanajay and the "black beans." W. W. S.

Candalaria, Cuba, W. I., June 25.

I suppose the above is about right, making, perhaps, a little allowance for friend Somerford's characteristic(?) enthusiasm. But my impression is that the melanga that I saw in Cuba several years ago is not exactly the same thing as the dasheen now grown extensively in Florida. At that time I did not understand that the young shoots and the stalk and leaves are in use as a food as well as the tubers.

Yes, friend Somerford, I often think of Parson Frazier and of his class who were learning to speak English while I was getting a little smattering of Spanish. May God bless the dear friends who were just then learning "What a friend we have in Jesus!" sung in Spanish. I hope they are *still* growing in grace and wisdom.

MOTH-BALLS AND SQUASH-BUGS.

Our friends will remember that I recently mentioned a cheap way of getting rid of squash-bugs on vines. The following, from the Jacksonville *Times-Union,* gives further proof of the efficacy of moth-balls:

MOTH-BALLS SAVED SQUASHVINES.

For several years I had waged a losing fight with the long black squash beetle, and the slender striped harlequin bug, and had lost all my pumpkin and squashvines. When I crumpled a dry leaf, a myriad of little demons would scatter in all directions.

Last year I had a good stand of squashvines planted in fertilized soil among the potatoes. One day a visitor and myself went over all the vines, turning up every leaf and destroying both bugs and eggs. Dropping off to play "possum" on the ground did not help them. We made a clean sweep of the bugs, and I forget how many hundreds were killed that day. Then I got a bag of moth-balls and laid them at close intervals along each vine under the thickest

> leaves and beside each young squash. A heavy rain washed some away, but they were replaced. After a few days I saw and killed a few stray beetles, but those squash and pumpkins grew very large, and I saw no more beetles. Last fall I hauled home all one horse could pull on the sled, from a comparatively few vines, and I believe it was the moth-balls that saved them. I shall try the same again.—*Exchange.*

As the above was marked "Exchange" we cannot give credit to the writer; and, by the way, I do wish it would become the fashion, especially in agricultural papers, to give name, residence, and date. Over and over again I have found articles on gardening and agriculture where important points are virtually "knocked out" because the writer does not tell *when* he wrote nor where he lives. We frequently see statements like this:

"You can get a crop of white beans before frost comes, if planted right off now."

Well, the editor may have put this in print just the minute he got hold of it, or it may have been lying around a month or more. It is such a simple thing, and occupies so little space, why cannot everybody put a date to his communication, and tell whether he lives in Maine or Florida—that is, if the editor does not object to giving the name and address?

TEMPERANCE

"VOTING AS WE PRAY."

We used to hear a good deal about the above years ago; but if I am correct the phrase has of late rather dropped out of sight. The good brother who writes below is, I think, too severe on professing Christians and ministers of the gospel. It may be true in localities, but I think it is not true as a rule. When the saloon vote has again and again outnumbered us I have asked the question, "Is it possible that any professing Christian of the present day will vote with the wets?" Just now while I write there is a war in Ohio, but I think it bids fair to be a *peaceful* war, and I wish I could say it will be an honest one. The ministers of our county are getting names on a petition from voters for Statewide prohibition. As I am rather old for such canvassing I told the good brothers I would furnish gasoline for the automobiles, and dinners and livery hire for the good pastors, and they are working with a vim, and gathering in names.

You may now listen to the good brother from Kansas who writes me a "love letter" as he calls it:

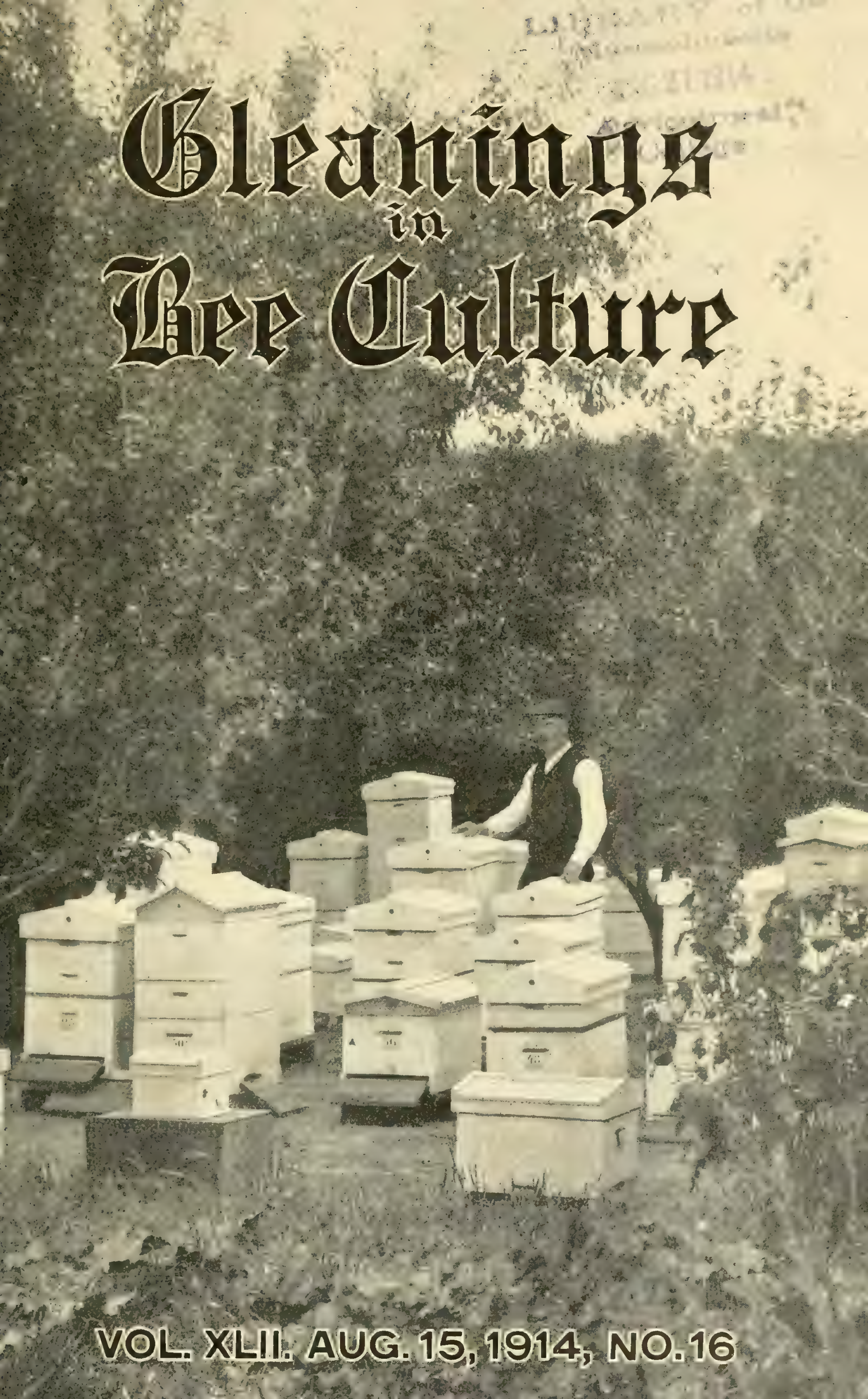
> Drinking is a disease to be prevented, like the bubonic plague, etc. To be consistent, let all the Christians pray against the plague and then vote for a law permitting Uncle Sam to license doctors and undertakers to spread it. Of course the Christians would have the spreading regulated. The pest-houses would have to close on Sunday, and all who were already incurable would not be allowed any more —"germs." After having these plague-houses upon every street where our boys and girls would be compelled to pass and every art used to induce them to enter, the undertakers would be allowed to mix some germs with their food and medicine; and then, if they did not contract the disease, still other means would be sought. Those who did not take the plague, or, better, the few who did have it only in a temperate form, would be pointed out by the Christians as fit subjects for heaven.
>
> Let us vote for what we pray and preach. Let the church members join in with the unbelievers, and this evil will be "downed."
>
> Let us license the stealing of horses, the committing of murder—*any* thing rather than the rum traffic—that greatest of all evils that threatens the utter ruination of the human race—an evil that is transmitted with increasing power to all posterity.
>
> The church is behind every reform—*away* behind. Brethren, let us catch up or the infidels will get all the glory.
>
> More preachers voted against Abe Lincoln than for him. They preached "Slavery is of the Lord;" "Servants, be subject unto your masters."
>
> In the office of the Missouri Pacific Depot at Benedict appears this sign:
>
> Beer is bad,
> Whisky worse;
> Drink lemonade—
> Safety first.
>
> What causes the most wrecks on our railroads? Rum, rum, rum. What causes the most wrecks in our homes? If the Christians had an old well back of their church lot that children would *continue* to fall in, they would not fill it up. Oh, no! they would preach to their children and tell them of the great danger of playing around its rotten curb. "Brethren, let's fill 'er up, even if it ruins the business of the undertakers."
>
> I love Christians—some of them. But can we point with pride to our Christian nation and say we drink less booze, have less crime, than the poor benighted heathens who worship idols?
>
> Now, Mr. Root, this may strike you as a peculiar "love letter," but I assure you I too love A. I. Root, his family, G. M. Doolittle, Dr. C. C. Miller, and a great host of others who are "God's noblemen."
>
> Guilford, Kan., July 15. HERSCHEL SHORT.

NORTH CAROLINA MEDICAL SOCIETY DENOUNCES THE USE OF ALCOHOL.

Dr. J. M. Parrott, of Kinston, president of the medical society of North Carolina, as reported in the Raleigh *News and Observer*, said:

> As medicine, in the opinion of many of our greatest doctors, it has practically no value. The great weight of scientific evidence leads to the conclusion that alcohol is an unmitigated evil. It is about, if not already, to be eliminated from the pharmacopeia. That it is not efficient as a medicine is easily shown by the fact that many of our best doctors never prescribe it at all. There are a number of cities in North Carolina in which it is not kept at the drugstores, and where no prescriptions have been written for it since statewide prohibition went into effect.

Gleanings in Bee Culture



VOL. XLII. AUG. 15, 1914, NO. 16

POLLYANNA
THE GLAD BOOK

By **ELEANOR H. PORTER**, author of
"Miss Billy" and "Miss Billy's Decision,"

and "Gleanings in Bee Culture," one year, Both for $1.50

The book, POLLYANNA, has been one of the best-selling books of the season because of the winsomeness of the story.

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Send for the book as a surprise for the young people of the family who will enjoy Pollyanna's "Glad Game" as much as will the older readers. A little romance in the life of the aunt forms the plot of the story, and the reader finds himself wondering again and again how it will end.

As long as our supply lasts, we are offering a copy of POLLYANNA and GLEANINGS IN BEE CULTURE one year for $1.50.

Twelfth Printing

Read some of the Press Comments:

"Pollyanna is the 'gladdest' book that was ever written. It is of more real value than any thousand sermons to which I have ever listened."—**Passaic Daily News.**

"It is a book that charms at once by its style, and delights by its character-drawing and the interest developed by its story."—**The Boston Journal.**

"Pollyanna is a delightful character, and the book refreshingly natural."—**Cedar Rapids Record.**

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Canadian postage, 30c extra. Foreign postage, 60c extra.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio

H. H. Root, Managing Editor E. R. Root, Editor A. L. Boyden, Advertising Manager
A. I. Root, Editor Home Department J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLII. AUGUST 15, 1914 NO. 16

EDITORIALS

A New Way to Stop the Robbing Nuisance

We call attention to a short article by A. J. Plummer, in the Heads of Grain department, in this issue, and our reply to the same. See p. 648. We believe that Mr. Plummer has struck on a good scheme, and shall be glad to have our beekeeping friends try it and report.

Our Cover Picture

Our cover for this issue shows a corner of the apiary of E. G. Ward, Christchurch, N. Z. On page 637 is shown the group of beekeepers at the Canterbury field meeting. These conventions in the field, by the way, are becoming more and more popular. We have received so many photographs of meetings of this kind that we propose using a large number of them in our Oct. 1st issue, making that issue almost a special field-day number. As usual the New Zealand beekeepers are not one step behind.

The War in Europe, and its Possible or Temporary Effect on the Honey Market

A month ago no one would have supposed it possible for all Europe to be involved in war; but such is the case at the present writing. The modern war-ships, rapid-fire guns, modern rifles with smokeless powder, to say nothing of aerial war-ships, will probably decide the issue, whatever that is, in a comparatively short time. But in the mean time the money market has been tightening up, not only in Europe but in this country. Banks have been putting out their 60 days' notices, and this makes ready money scarce. The effect of all this has been to decrease prices on luxuries, and advance the cost of necessities. So far honey can hardly be classed as a "necessity." It belongs to the condiment class; and while it is a food of the very best kind, and while it is cheaper than butter, and sometimes cheaper than sugar, it is, to a great extent, a delicacy or luxury. During these troublous times the public will buy necessities, and cut out to some extent things it can get along without.

It is far from our purpose to howl calamity, because we believe that, possibly before next issue, our money scarcity will be over, and that conditions will have resumed their normal trend. The general effect, however, will be to put a check on the upward trend in prices on honey—possibly enough to offset the advance that would naturally come from an advance in clover honey by reason of its scarcity.

Why Every One Should Comply with the Net-weight Law

The operation of the net-weight law is going to be confusing to many small producers. Then, again, there is a large class who do not wish to bother with the intricacies of the net-weight law. All we can say to these people is that they should sell their honey locally, and make sure that it is consumed locally. Do not delude yourself by the notion that, after your honey is sold out of the State, no one will know who produced it. Your dealer will know; and if he gets into trouble he will come back on you. Better get into the band-wagon, and mark your honey as it should be marked, and thus be on the safe side.

Honey-crop Conditions and Prices

There is not much new to add. Our last issue gave extended reports from the fields from every part of the United States. In fact, over a large part of the United States clover was a failure. But there will be considerable clover honey just the same. As stated elsewhere, the shortage of the clover crop will have a tendency to boost prices; but the tightness of the money market as a result of the war in Europe, which we regard as only temporary, will probably offset a possible advance by reason of scarcity. Taking every thing into consideration, the general honey market will remain nearly stationary. In the mean time conditions ought to be better later, or as soon as the war is brought to a conclusion, for we can not believe that a general European war can last long. If the high seas are kept open to commerce (and at the present writing they *are* being kept open), commerce ought to resume its normal condition soon.

The Army Worm on Alfalfa in Colorado

In sending in his honey-crop report, as given in last issue, Mr. Wesley Foster sent two clippings from the Montrose *Press*, of June 17 and 18 respectively, concerning the army worm which is destroying whole fields of alfalfa, seeds and spuds, in the vicinity. Mr. Foster calls our attention to the fact that the beemen were awake to the situation and called a hurried meeting to prevent indiscriminate spraying that had been recommended, as this would destroy a large part of the percentage of the field bees. Beekeepers recommended the plan which was just recently recommended by the University of Illinois—that is, the sowing broadcast in infested fields a rather dry mash mixed with Paris green, or arsenate of lead. Clean bran and Paris green are mixed together in the proportion of sixteen parts of bran to one of poison, moistening the mixture with water in which a quart of salt has been dissolved for each ten gallons. The mash should be just wet enough to crumble in the hand. Sixteen pounds of mash is sufficient for an acre.

By being alive to their interests it is to be hoped that the beekeepers will not be obliged to suffer indirectly because of the ravages of the army worm.

Swamp Beekeeping in and about Medina

In our last issue, page 570, we referred to some experiments we are making in keeping bees in swamps near Hudson, Ohio, some thirty miles from here, and of swamp bee-pasturage in general. Since then we have been extending our operations in and about other swamps. We now have four swamp yards in all, and possiblly will have two more in a few days. So far the swamps are yielding sufficient nectar and pollen to keep up brood-rearing at a good rate for the purpose of making increase, and that of course is a necessity. At our queen-rearing yard, which we can't move on account of drones, we are feeding outdoors to stimulate breeding for the same purpose. Weather conditions have been favorable, as we have been having hot weather with an occasional heavy rainfall.

While Medina is not in the swamp area, yet there are several swamps within five, ten, and thirty miles—in all, enough to afford us considerable bee-pasturage. The regular yards are being moved as fast as we can find other swamp locations.

As we stated in our last issue, our subscribers, so far as conditions warrant, may find it to their advantage to hunt up swamp bee-pasturage, and locate their bees thereon. The war in Europe will have a tendency to stiffen the price on sugar. In fact, it has already done so. While the advance is not large proportionally, yet so far as possible a more satisfactory increase of bees can be made from *natural* bee-pasturage, and at little expense except the moving of the bees. Even if increase in numbers is not desired, a good fall pasturage will put plenty of stores and young bees in the hives, and that is of prime importance, Young bees with plenty of stores, other things being equal, will insure good wintering.

Very Little Adulteration of Honey

We believe that honey is as free from adulteration, taking the country over, as any article of food on the market, aside from such food products as do not permit of any adulteration whatever. Comb honey, of course, has never been adulterated, and never will be; but there was a time before the passage of the pure-food law when unscrupulous dealers handling liquid honey would put out a mixture of honey and glucose. However, this practice has stopped so largely that it is only on very rare occasions that we hear of any thing of the kind. We believe that the consumer can buy liquid honey now and be just as sure of getting a pure product as when he buys creamery butter; in fact, we believe he is more certain of getting a pure product, and this is saying a good deal. We are constantly on the alert for reports of adulteration; but, as mentioned, we see them so seldom that we may say that it almost never happens.

There is still some fear, however, on the part of certain consumers that they are buying an adulterated product, especially when they buy honey that does not taste like the honey that they are accustomed to buying, or that they bought the last time, etc. Recently we learned of a gentleman living in a city who bought some honey that "tasted funny," and he was sure that it must be adulterated. The honey in question bore the label of a well-known producer in the West, who, we knew, would go out of business before he would ever stoop to adulterate. We wrote the gentleman to that effect; but it was hard to convince him, simply because the honey did not taste like honey that he usually had eaten. This only goes to prove that honey is honey to most people; and that it may have any one of a good many different flavors, depending upon the flower from which the bees make the honey, is astounding news. Just the other day a lady told us that she had bought some of our honey, but that it was spoiled. We asked her what was the matter with it, and she said it had gone to sugar!

In Part IV. of the Annual Report of the Connecticut Agricultural Experiment Station for 1913 is a short paragraph bearing the simple statement in reference to honey: "The three samples examined were not found to be adulterated." Presumably the three samples were suspected of adulteration; and while this statement by itself is not especially significant, the fact, however, that it is exactly the same kind of statement that appears in almost all cases when honey is examined, does prove that honey is a reliable food that is uniformly pure.

Not Poison, but Probably European Foul Brood

THE following letter from Dr. E. F. Phillips, of the Bureau of Entomology, Washington, D. C., will explain itself:

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF ENTOMOLOGY,
WASHINGTON, D. C.

Mr. E. R. Root:—I understand, indirectly, that there has been considerable complaint in Colorado this year of losses to beekeepers, through incorrect spraying. This has evidently also come to the attention of the National Beekeepers' Association, and I rather suspect that it was through you that they took up the work. You will be interested in knowing that I have just received a letter from Mr. R. W. Ensley, Read, Delta Co., Colorado, sending a sample of brood No. 4389. Mr. Ensley asked that this be examined for the presence of arsenic. When I saw the sample I decided that it should first go to the bacteriological laboratory. A report of the examination has just been received showing that European foul brood is present in the sample. I think this will explain the trouble, which they have had in Colorado, although we had not previously suspected the presence of European foul brood in that State. As you will remember, from previous conversations, I told you that we frequently get reports of losses due to spraying; and after an examination of the sample we find that the real trouble is brood disease. In most cases, also, this is European foul brood. I trust that the beekeepers of Colorado will take immediate steps to get this disease under control and will quit looking for poisoning. Of course, they may have suffered some loss from poisoning; but European foul brood is a great deal more serious than a little surplus arsenate of lead. I have notified Mr. Ensley, as well as Mr. Wesley Foster, concerning this sample, and I trust that the inspectors will get to work to get this disease under control and will inform the beekeepers as to the best means of doing this.

E. F. PHILLIPS,
In Charge Bee Culture Investigations.
Washington, D. C., Aug. 5.

Dr. Phillips has held that some, at least, of the so-called cases of poisoning on account of improper spraying fruit-trees have been due to the work of European foul brood. At all events he has seen numerous cases of this, and the one above is a case in point.

From a recent conversation with Dr. Phillips we understand that he does not claim that bees may not be killed by spraying-liquids applied while the trees are in bloom. Indeed, if we are correct, experiments are now under way by the Bureau to determine whether bees can be or are destroyed in any such way. The result of this work will doubtless be made public later on. The beekeepers of the country will await with interest the report.

The Net-weight Law Causing Inconvenience to Producers

Thanks for the advance copy of your editorial on the net-weight law, and also for your answers to my questions in this regard.

There is one thing more I should like to know. I keep a local store supplied with comb honey. I sell the honey "by the case," and the storekeeper retails the sections by the piece. Must the storekeeper weigh and mark each individual section before handing it over to a customer, or must I do it before delivering the honey? I could do it with a comparatively few cases in the course of the year, but how is one to take time for it when the crop runs up into tons, and he is pushed to get it all ready for market?

I fear that this net-weight law is going to do great injury to the bee business. Many comb-honey producers will become so disgusted with its unreasonble regulations that they will change to raising extracted honey. The result will be an overproduction of the latter article, and consequent fall in prices, until the bee business will not pay at all, and the law will be to blame for having killed it.

WM. MUTH-RASMUSSEN.
Independence, Cal., July 4.

OUR editorial on this subject in our July 15th issue, page 528, practically covers your inquiry. We may state, however, in answer to the question whether the storekeeper or the producer must mark the net weight on the sections that, in our opinion, that duty devolves on the producer. The dealer or the consumer, under the law, can require the net weight or minimum net weight of each section. If, however, the dealer buys honey without the net weight being marked on it, it will be up to him to supply that deficiency before he can sell it to the consumer. At all events, it is very clear that the consumer can demand every package of comb honey he buys shall have the net weight marked on the sections. There is no getting around it, as we understand the law. For particulars how to apply the net weight, the reader is referred to our editorial in our last issue, page 528.

The net-weight law is going to work some inconvenience and hardship, and beekeepers will adjust themselves to it. It is not, however, going to protect the consumer, in our opinion. As explained in our last issue, practically every comb-honey producer will be obliged to adopt the scheme of marking the minimum net weight on each section. This will mean that he must lose the difference between actual net weight and a minimum net weight marked on the sections. As beekeepers, like everybody else, are not inclined to give away something for nothing, they will charge enough extra per pound or ounce to cover the deficiency and more.

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Fumigated Combs Not Objectionable to Bees

We have received a large number of reports—many more than we can publish—from beekeepers who testify that fumigating with carbon bisulphide does not injure the combs in any way so far as the bees are concerned. These reports cover experience with fumigation of combs in numbers running into the thousands, so that we think it is safe to assert that carbon bisulphide does not make the combs unfit for use again for brood combs, as intimated by P. J. Hovel, page 476, June 15.

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The National Net-weight Law on Comb Honey Not Altogether a Nuisance

The new law will encourage the packing of comb honey in cartons in order to avoid the labor of marking each individual section. It will stimulate an effort on the part of the producer to sell his comb honey in local markets and to his neighbors. Both results will be for the good of the comb-honey business and the public generally. If all the comb honey produced were cartoned it would practically eliminate 90 per cent of honey broken in shipment.

The net-weight law will go further. It will eliminate entirely non-separatored comb honey. Such honey, offered at all kinds of prices to move it off, has been a real detriment to comb honey produced as it should be with separators. Thanks to the net-weight law, this stuff will be relegated to the past. That which has been produced already will have to have the individual weight on each section. After a producer tries to mark the exact weight of honey on each section, he will conclude that he will be saving nothing by dispensing with separators.

Another kind of comb honey that will be put out of business will be glassed sections. While these goods have not been a nuisance to the rest of the comb-honey producers, it will not be practicable to sell them any more.

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Should Producers Advance Prices on Comb Honey on Account of the Operations of the National Net-weight Law?

The suggestion has been made by one who stands high in the beekeeping fraternity that now is an opportune time to advance prices on comb honey, for the reason that the national net-weight law is forcing an expense on producers in marking, and a loss in the honey to be sold that should be covered in some way; that is, providing it is sold by count. The argument is made that if the producer sold a case of 24 one-pound sections formerly for $3.00, we will say, he should now charge at least $3.25 for that same case, assuming that the two seasons were alike so far as the production of honey was concerned. Last year the weight of the section, or frame around the honey, could be weighed in with the honey and the wax; but the wood part must now be eliminated, and some one must pay for it. Again, last year it was possible for the producer if he sold by count to get pay for all the honey he produced and put into shipping-cases. Under the operation of the net-weight law he can receive pay only for each section on the basis of the lightest section; or, to put it another way, he must sell every section in the case, no matter what it weighs, at the weight of the lightest section in the case. The elimination of the frame around the honey will amount to 24 ounces, or 1½ lbs. to every shipping-case. (This formerly went in at the price of the honey.) If the lightest-weight section in the case is 12½ ounces, exclusive of the wood, all the rest of the sections in that case, no matter whether they weigh 1½ or 2 ounces more, must be sold as weighing 12½ ounces. At a conservative estimate there will be a shrinkage right here of ½ lb. in a 24-lb. case, or, in all, 2 lbs. The actual shrinkage that must be deducted this year over last year on a case of sections sold by count will not be less than 2 lbs. to the case, and sometimes it will run from 2½ to 3 lbs. If the sections were produced without separators, the shrinkage will be even greater. Let us suppose that the producer receives 12½ cts. for each one-pound section. If he is to make as much money as he did last year (and the presumption is that the law of supply and demand and competition have made 12½ cts. net on whatever he sold for a living price), then he must necessarily charge the producer 25 cts. more per case for his honey.

The net-weight law was designed to protect the consumer; and in a large way it does; but when that consumer buys *comb* honey by count in case lots he should or ought to pay at least 25 cts. more, or, we will say, one cent more per section. When the cost of production is increased, the extra cost is bound to come, sooner or later, upon the consumer. So in this case.

The next question that arises is, "Will the producer charge more for his comb honey?" In our judgment he is certainly entitled to do so, especially this year, when there is quite a marked shortage in the production of clover honey, and a short or light crop of clover has a strong tendency to advance the price of honey, even if there has been a good yield of Western alfalfa and California sage.

COMB HONEY SOLD BY THE CASEFUL BY WEIGHT INSTEAD OF BY COUNT.

In the foregoing we have explained the operation of the net-weight law when comb honey is *sold by count,* or so much a shipping-case, irrespective of the weight of the honey in the shipping-case itself except as it is shown by the minimum net weight on each individual section. The producer can save himself loss when he marks the minimum net weight on each section by selling the whole caseful of sections by weight less the weight of the wood around the sections and the weight of the shipping-case. Let us take a concrete example:

The producer we will say has all his comb honey in 1⅞ by 4¼ square beeway sections. He puts it all in three grades; and each section according to its grade is marked not less than so many ounces. If he sells his honey by count, as already explained, he will have to collect more from the dealer or consumer in order to get as much as he did last year. But this may not be practicable. Here is what a large number of producers are going to do—in fact, we may say the majority, so far as we can ascertain: They will mark the minimum net weight on each section according to its grade, and then sell each case of sections by weight less the tare of sections and shipping-case. If the case holds 24 combs the whole caseful will be weighed; and then the tare, one ounce per section, or 24 ounces plus the tare for the weight of the shipping-case, will be deducted from the gross weight, making a net weight of — pounds. If the dealer, we will say, pays 15 cts. per lb. he will pay the actual net weight of the whole case of honey multiplied by 15. At that rate the producer will get paid for every pound of honey he produces. But it goes without saying, that, because he loses 24 ounces per case over what he formerly received for the price of his honey, he will charge the dealer or consumer enough more to make up the difference. If he got 15 cts. per lb. last year for equally good honey he will multiply 1½ lbs. by 15 and add 23 cts. to the case of honey. The dealer, of course, will charge that up to the consumer, and then some.

When he sells a caseful by *count* he loses all the honey in the sections in excess of 12½ ounces, 11 ounces, or 10 ounces unless he charges enough more to make up the difference, and this may not be practicable in all cases.

The National Net-weight Law; a Flood of Inquiries Concerning it

NOTWITHSTANDING the fact that we thought we had covered every possible contingency concerning the operation of the national net-weight law, questions are still coming in. Many have asked this question:

"Does the net-weight law apply to shipments of honey that are sold locally or within the States?"

Any federal or national law is operative only on interstate business, and in the District of Columbia, or any territory not yet made into a State. As there is no territory within the United States proper that has not been made into a State, the law as we understand it would extend to insular possessions such as Porto Rico, Guam, and the Philippine and Hawaiian Islands.

A small beekeeper may sell his honey at a local grocery without any marking or stamping; but if that grocer ships that honey out of the State, that small beekeeper may be held liable to fine under the net-weight law. Right here is where the shoe pinches, as it practically means that the national net-weight law applies even to local shipments. Naturally enough, one does not care to run up against Uncle Sam. For that reason we advise every one to comply with the law, even on local shipments.

The next question that has been repeatedly asked is whether every individual section in a case is to be marked, showing its exact weight or minimum net weight, if the net weight and tare on the outside of the case are correctly shown. Yes, indeed, it does not make a particle of difference what the markings are on the outside of the shipping-case. Every section in that case must show either the minimum net weight or the exact net weight, and this must be plainly marked on every section unless such sections are to be put in cartons. In that case the carton itself must show the exact weight of the contents of honey and wax, or the minimum net weight.

Another question that has been asked repeatedly is whether the tare and exact net weight shall show on the shipping-cases. We do not understand that the law applies to shipping-cases. It has direct reference only to packages that go to the consumer As a matter of fact, both dealer and buyer will require the tare and the net weight of the shipping-cases, as heretofore, that is providing the sections are not sold by count; but now the net weight must not include the weight of the sections. When sold in that way every section in the case must be marked "Minimum net weight in blank ounces;" but every section, as we have previously explained, may have *more* than the minimum, but no one of them may have *less*

Another question is whether the word "minimum" can be omitted from the statement "Minimum net weight 12½ ounces," for example. That depends. If the producer is willing to go to the trouble of marking the exact weight in ounces and fractions thereof of *every section,* let that weight be what it may, he can omit the word "minimum." But if the sections are to be sold by count, then the word "minimum" must always be used.

Another question is, whether honey packed and marked in the old way, including the weight of the wood, prior to Sept. 3, 1914, will be misbranded. No, not if the fact can be proven; but it may not be possible in all cases to do this. In that case the producer should comply with the law at once; and he should also make an effort to have his dealer dispose of all goods, not properly marked, before Sept. 3, 1914.

Another question that has been asked over and over again is how we are going to determine the minimum net weight or the exact net weight of every section we sell without making the expense cut deeply into the cost of the honey.

A pair of common postoffice scales for weighing letters, weighing ounces and fractions thereof, up to the limits of one or two pounds, can be secured at a price of about $1.25 or $1.50 from dealers, or from the large mail-order houses. Scales should be selected having a flat platform not a rounding one.

If the producer is putting up his honey in 4¼ by 1⅞ beeway sections, he should grade his honey in three grades. One grade, the heaviest, should weigh as high as or higher than 12½ ounces; the next grade, more than 11 ounces, and the next more than 10 ounces Three rubber stamps showing these corresponding minimum net weights should be provided. Every section, until one becomes expert in judging, should be tested by the scales. In placing sections on the scales care should be taken not to set them down in such a way that the pointer will dance up and down for a second or two. Lay each section on gently, and the pointer will show the exact weight instantly.

As a suggestion we would recommend marking on the dial, in inks of different colors, the point 12½ ounces, 11 ounces, and 10 ounces, so that the eye can tell without squinting in what class the section belongs. After one becomes expert in sorting or grading sections, it is surprising how accurate he will become in determining weights without the use of the scales. It is also surprising how quickly the scales may be used and thus eliminate entirely the matter of guesswork.

After sections have been classified in three lots they can all be marked with a rubber stamp. For instance, the 12½-ounce stamp with its pad can mark the minimum net weight on every section in a lot by itself. In the same way the 11-ounce stamp can be applied to its grade.

If one chooses to go to the trouble of marking the exact net weight on every section, he will have to use a rubber stamp and fill in the blanks with a pencil in plain figures, after he weighs the section and subtracts one ounce. To mark up his crop, the first thing to do is to stamp every section with a rubber stamp; then, as he weighs every section, put the exact weight in pencil in the space provided. This would seem to entail a great amount of labor that would be prohibitive; and for that reason we are advising every one to use the minimum-weight scheme and sell the sections by count.

We also recommend every one to use cartons and have the minimum net weight printed on the cartons themselves. This will save fussing with rubber stamps. The carton will protect the section, and the honey when shipped in cartons will go through to destination in very much better order. There is no question about that.

Still another question is whether the producer's name and address must be marked on the sections or shipping-cases. We do not so understand it.

Dr. C. C. Miller STRAY STRAWS Marengo, Ill.

JOHN E. ROEBLING asks: "In hiving a swarm on sealed brood, would it be all right to take a hive-body of said brood right off another hive—where it had been placed about ten days previously over excluder—without shaking off adhering bees, or would the swarm be likely to kill said bees?" I should not expect any fighting.

BULLETIN No. 92 of United States Department of Agriculture, by Dr. G. F. White, is one of great interest. It shows that 145.4 degrees F. kills European foul brood; 208.4 kills American foul brood; 136.4 kills sac brood; and 134.6 kills nosema disease. This is with the stipulation that the given degree of heat be maintained continuously for at least 10 minutes. That settles it that bringing diseased honey to the boiling-point, and *keeping* it there for 10 minutes, will kill either of the four miscreants.

THE liquor crowd are fond of telling, as quoted on page 567, what a large number of people would be affected if their business should be killed. I wonder if they realize that the more people engaged in it, and the more grain used in it, the stronger the argument for killing it, and for killing it *now*. According to their way of thinking (or at least talking) if there are but a few thieves and thugs, throttle 'em; but if they are sufficiently numerous, give 'em full play, or at least go no further than to "regulate" 'em.

JOSIE GRAY succeeded last year by returning all brood and bees next day to the swarm, p. 353. It's dollars to doughnuts that the plan will not succeed this year. But you say, Mr. Editor, that if the plan is continued there will be weak colonies from the failing of old queens. Why shouldn't the bees supersede the failing queens, just as they do in my apiary, where every good queen is superseded by the bees? [Bees will supersede failing queens, but the point is, that many are not superseded until the colonies have become so weakened that they are not profitable as honey-producers. For this reason many beekeepers replace all queens when two years old. Now, doctor, we really thought that you did this, or at least that you replaced your failing queens with young and vigorous ones. How about it?—ED.]

A PRIME swarm issues about 3 days before the first virgin leaves her cell, says *British Bee Journal*, p. 214, May 28. The accepted tradition on this side, following Quinby, is that the prime swarm issues about the time the first cell is sealed, or 7 to 8 days before the emergence of the first virgin. I suspect that the bees don't follow either rule, but vary greatly. Certainly that is true of my bees. Up to June 25, 12 colonies have swarmed. As to 8 of them I know that they swarmed from 7 days or less to 12 days or less after the *first* egg was laid in a queen-cell, the average being 9.62 or less. But in every case their first cells were destroyed. If they had not been destroyed, the supposition is that they would have swarmed sooner. As to the time from the laying of the eggs in the second set of cells up to the time of swarming, I can give it for the whole 12 cases. It varied from 2 days or less to 11 days or less, averaging 6 days or less. More data and more exact data are needed on this point.

A CALIFORNIAN asks if I had handled foul brood in Europe and America, and found that foul brood was foul brood in either place, how I would name the other. He has none now unless it be the New York bee disease, for which he asks help. I want to say emphatically that foul brood is not always foul brood in the sense that it is always the same disease. It would be much simpler if "black brood" could have been left as the name of the New York disease, which is now called European foul brood, and "foul brood" had remained the name of the other disease now called American foul brood. The important point is that effective treatment for European foul brood will not do at all for American foul brood.

Here's the treatment for European foul brood that works here as well as any thing I know: First, no matter whether the case be severe or mild, *make the colony strong.* In a severe case, kill the queen; and as soon as the colony recognizes its queenlessness, say within 24 hours, give a ripe queen-cell, or, immediately at the time of killing the queen, give a virgin not more than a day old or a cell in a protector. That's all; the bees will do the rest. In a mild case, *make the colony strong,* and cage the queen in the hive for a week or ten days. Only that. But don't expect the disease to be at once and for ever stamped out. Last year I had the disease in a mild form in about one colony in four; this year in about one in twenty. [This treatment is very simple; but if you had used only vigorous Italian blood instead of part hybrid would you not have been entirely free from the disease by this time? —ED.]

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

BEEKEEPERS' FIELD-DAY DEMONSTRATION PICNICS; HAPHAZARD MARKETING.

Experience has proven to me time and time again that the beekeeper who always stays at home, never meets with other beekeepers, and does not even accept one or more bee-journals for a companionship, is not only dragging himself disadvantageously through life but is a detriment to his more progressive fellowmen. Such a beekeeper is hampered in many ways, and blundering along and failing very short of what might otherwise mean at least partial success in the work in which he is engaged. He is a detriment, not only to his fellowmen but to himself. He fails to obtain a just reward for his toils on account of the fact that he is ignorant of the true value of the products that he does succeed in producing under the difficulties that continually confront him. And worse than this is the fact that his acts too often mean great injury to the beekeepers who have taken much pains and care in studying all the factors that go to make a successful honey crop and then disposing of it at a good profit. This should not be. But what is our remedy?

The injury done by these "fellows" is far greater during years of good honey crops. Their output is usually not very large during a season of scarcity. During more favorable seasons these beekeepers have quite an amount of honey to sell, and it is ridiculous how they do sell it. It is this very ridiculousness that means so much harm for the "other fellow." The low price set by these inexperienced beekeepers has torn down many a market, and the beekeepers who have to depend for their bread and butter upon their bees and the honey crop produced have felt it keenly. This is a distinct loss to the beekeepers, and amounts to not only hundreds but thousands of dollars in a single season. Yet we have this class of beekeepers to contend with, and it seems that they are going to stay with us for some time yet at least.

Texas is suffering from the results of such haphazard marketing on the part of those who did not know the proper prices for their products. This always has a disastrous effect on the honey markets of this State, and causes great loss indeed. In addition to this many beekeepers have resorted to price-cutting, and there is nothing that does greater harm to a market upon which the producers depend for an outlet for their products. And this is especially true when a crop is large and everybody is in a hurry to get his products to market, whether it be honey, vegetables, fruits, or any thing else.

Such demoralized conditions are not always caused by a lack of demand. I have seen instances when there was a good demand for honey on the part of the consumer, and yet the buyers did not handle it. This was caused by the instability of prices, one beekeeper offering honey lower than another, so that the buyers were afraid to buy for fear that they might lose in the transaction.

Organization would do much to remedy these matters; but, pray, how far have we succeeded in our efforts to organize the beekeepers of the country? I am aware of the fact that some sections of the country have their organizations and are doing good work; but not every portion of the country is so happily situated as to make it possible to organize the producing forces. This was tried in Texas several years ago, and it failed. The situation does not seem any more encouraging now. Besides, there is a large territory to cover, and the number of beekeepers alluded to above is very largely represented. It would be very difficult indeed to get them into an organization of this kind, or to get them to affiliate themselves with it for the purpose of marketing their little product when they have it for sale.

It is evident that the beekeepers of Texas will eventually devote more of their time and attention toward the matter of disposing of the Texas honey crops more satisfactorily. The matter of better marketing systems is being studied most attentively by all classes of producers at the present time, and both State and the national governments are busily engaged in the discussion of this all-important marketing problem. It is high time that the beekeepers fall right in line of the march that has already been begun, and take hold of it most earnestly. While it is being taken up by other States, our Texas beekeepers have not done a great deal in this direction, and it is hoped that steps will be taken at the earliest opportunity to find remedial measures for a more profitable marketing of our honey crops, especially when we have a large crop.

It is to be hoped that this matter will be taken up at the State Association meetings, not so much for the purpose of forming a selling organization at this time, as it seems

Continued on next page

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

From July, 1912, to March, 1914, I lost 35 colonies, so that I had 70 extra supers for tiering up my strongest colonies to two surplus supers. If I had had the seventy supers on 35 additional colonies, and but one super for any of my colonies, I figure that I should have been the loser by several hundred pounds of honey.

* * *

THE FUTURE OF BEEKEEPING IN THE WEST.

A trip through the Rocky Mountain region gave me an opportunity to study the outlook for the bee industry of the future in that region, along lines of prospective development. There is great promise in the future of the West, and in years to come the opportunities for an extension of this industry will multiply. This development will necessarily come with the development and extension of irrigated areas, and, though slow at first, will in time cover large areas of soil now considered hopelessly desert. Some of the projects to be taken up in the future will be to get water on to vast tracts of rich desert lands. To accomplish this, engineering feats perhaps greater than that of the Panama canal may be executed. The necessity, in years to come, for the development of these great irrigating schemes to make the desert help sustain teeming millions of inhabitants is already apparent. With the advent of water on the desert lands will come the bee, and the development of the beekeeping industry on a greater portion of our desert valley lands. Utah, which has thousands upon thousands of acres of rich lands in its southern part, could, with water, become almost an empire in itself. Much of it is already being settled by a sturdy class who expect in time to secure water from some source by the aid of the government. The source is yet somewhat remote; but that water can be brought from a distance for these fertile tracts I have no doubt; and that it will be in a reasonable time is almost certain. As I have said, with the advent of water to these lands will come the honeybee and the expansion of the industry in the West. One thing that impressed me more than others was the wasteful system of irrigation in Utah and Colorado. Here the water is carried in open dirt ditches through mains and laterals. In the orange districts of California every inch of water is conserved by bringing it from the mountains in cement ditches and cement pipe-distributing systems to the cement distributing-flumes, all of which are watertight. This system will in time be adopted generally in all localities, for the water lost through seepage would be sufficient to enlarge an irrigated area to a considerable extent.

There is said to be undeveloped water power in the West yet in the hands of the government, amounting to 5,000,000 horsepower, to say nothing of the vast amount filed on by individuals that is yet undeveloped. This is sure to be a great factor in developing and distributing water for these desert lands; for with this great amount of power at hand it will be possible to raise water over mountain tops if necessary, and lower it to the valley below. The above may seem to some as not bearing on the bee business; but it will have a great bearing in the far West in time; for with water will come alfalfa, and perhaps other plants may find their way into these cultivated areas that will help swell the honey production. I cannot at least refrain from pointing out that the West is as yet only partially developed. The future will give opportunity for many who are ready to grasp situations as they develop.

There are many places to be found in the Pacific and Rocky Mountain States, where water development is the only thing lacking to make a fertile valley and an opportunity for the beekeeper.

Continued from previous page

that the time for such a movement is not quite ripe, but with the idea of creating an agitation that will eventually lead to something practical in this direction.

In the mean time it is also hoped that more beekeepers may get the spirit of holding the now much-talked-about field-day demonstration meetings that are being held in so many places. I would that these were so frequently held over the entire country that all the beekeepers might be in closer touch with each other, and all those most important things that concern them materially in their chosen vocation upon which they must depend for a livelihood. With such meetings held occasionally in every hamlet, town, and city throughout the country, it would be possible to reach the smaller beekeepers and spread the valuable information among the very class of beekeepers that we have not been able to reach. Let us pull for more of these field-day meetings. I'll make a beginning.

J. E. Crane

SIFTINGS

Middlebury, Vt.

"To my notion," says P. C. Chadwick, page 407, June 1, "pollen is the greatest breeding stimulant of all;" and he is right, if, as he says, there is an abundance of honey in the hive.

* * *

I have wondered if it would not be a good investment for the State to buy and present beekeepers with spectacles. I find a good many who find it very difficult to see foul brood in their hives.

* * *

Dr. Miller says, page 405, June 1, that with him "superseding practically always takes place after swarming is all over." With us superseding takes place at all seasons, even in winter, for we often find a young queen has been reared during the cold months, and therefore is worthless in the spring. I believe swarming is often the result of superseding.

* * *

I found a super on the hive of one beekeeper where each row of sections alternated with an extracting-frame. Now, the interesting thing about it was that the foundation in the extracting-frames had been drawn out and pretty well filled with honey while scarcely any thing had been done in the sections.

* * *

A bran-bag is an excellent thing to bring down bees in. We found a swarm in the top of a pine-tree some thirty feet above the ground. Putting a hoop in the mouth of the bag to hold it open, one of our men went up the tree and shook it into the sack; and, closing the mouth, brought it down with the loss of but few bees.

* * *

So much has been written about curing foul brood by introducing an Italian queen that a word of caution may be of use at this time. I find those who have American foul brood are trying to rid their bees by introducing new queens. Now, while it seems certain that good Italian bees will withstand American foul brood, or will last much longer after contracting it than black bees, yet it is doubtful if they can ever rid themselves of it when once it has been introduced into a hive.

* * *

June 1, page 403, we are told by the editor "where to locate outyards." Any one who has had but little experience along this line would do well to pin this editorial in his hat or put it in some other safe place for reference. What is said of the kind of people to avoid is well worth repeating. "Never locate on the farm of a narrow-minded close-fisted man, and one hard to get along with. . . . A narrow-minded, crusty sort of chap will make no end of trouble." True, every word.

* * *

William Beucus' experience, page 462, June 15, in getting farmers to try sweet clover is certainly interesting. I have been surprised in talking with farmers the present season to find so many favorably disposed to sowing it. I believe its use would add immensely to the value of our dry clay soils if farmers could be persuaded to use it, giving an abundance of feed when other plants with a shallow root system dry up. I wish the Department Bulletin No. 485 could be placed in the hands of every farmer in the land. I should like to distribute 200.

* * *

On page 335, May 1, Mr. T. J. Landrum takes issue with Dr. Miller as to the time from the laying of an egg to the emergence of the mature bee. Now, I am inclined to think both may be right—that under some conditions bees may emerge much sooner than 21 days, and under other conditions it may require more than 21 days. We may learn something from the cosmopolitan hen that birds' eggs do not always hatch at exactly the same time, some of the chicks coming out a day or more ahead of time, while the hatching of others is delayed 24 or more hours behind the average time.

* * * *

It's pretty hard to select or call attention to the best articles in a periodical like GLEANINGS, where there are so many of great value to an enterprising beekeeper; but that one by E. S. Miles in the April 1st issue, "What is a Good Queen?" took my fancy. When one has been keeping bees for fifty years he becomes quick to recognize differences that those of less experience might overlook. Or where one has been inspecting bees for even a few years he may recognize as much difference as in different herds of cattle or flocks of sheep. I have come across some bees that I would not take as a gift, while others remind me of the command, "Thou shalt not covet." To say that we cannot improve our stock is puerile and foolish. To try to do so intelligently is to put dollars in the pocket of any young person who will follow it up, as Dr. Miller reminds us, page 244, April 1.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

LARGE HIVES AND POPULOUS COLONIES.

"I have been using the eight-frame hive, but do not have the success with it that some of you older ones tell about. Talking with quite a prominent beekeeper not long ago he said this hive is too small, and that I would do better to use a larger one or else two eight-frame hives, one on top of the other. Large hives give rousing colonies, and these yield large crops of honey, minding their own business and not swarming."

Well, I think one can hardly say that successful beekeeping is a matter of adding one, two, three, or even four stories to an eight-frame hive. The question of large colonies depends quite a little on how the bees winter, and the age and vitality of the queen. With a poor queen, or a weak colony in early spring, the adding of an upper story would be worse than useless. It would be far better to confine the bees to the combs they can occupy than to add an upper story, thus utilizing the warmth created by these bees in the upper hive while the brood is in the lower one. I am well aware that the bees can form a cluster around the brood they have, and hold it from perishing, even if all "outdoors" surrounds them; but much more honey will be consumed, and brood-rearing will go on to a greater disadvantage than would be the case had the colony a hive small enough to suit their wants. With a rousing colony and a good queen, a gain in bees can be made by adding an upper story to the hive the bees wintered in just before it becomes full of brood; but if comb honey is wanted, I should consider it advisable to use ten-frame hives; and, when adding another ten-frame hive, to put a queen-excluder between the two, in order to keep the queen in the lower story. It looks as if the beekeeper you talked with believed that in some hidden or mysterious way that extra story added to the numerical strength of the colony. Let us look at this:

To keep eight Langstroth combs full of brood any queen must lay about 2500 eggs daily, continuously. That would mean enough bees to give a heavy swarm about every two weeks. Previous to the height of the clover and basswood season, not one queen in fifty will do that. To keep ten frames full of brood, a continuous daily average of about 3000 eggs must be deposited, which would give a rousing swarm every eleven days. Scarcely one queen in a thousand will do this, previous to the time when such great numbers would be of any value to the beekeeper as a source of comb-honey production, coming as it does at the time of great dearth of nectar between basswood and buckwheat. Probably your beekeeper would tell you that, with these two or three story hives, brood would be found in fifteen or twenty frames. Doubtless this is true; but eight combs solid full of brood in a single hive are of more value to the comb-honey producer than twenty combs having the same amount of brood (but scattered), in which the bees have had a chance to store the larger part of the white honey which should have gone into the sections. Eight frames filled with worker comb will accommodate the best of queens, and enable them to have *every* cell for egg-laying. An eight-frame hive will not give her such use.

When the queen has brood to the amount of seven combs full in this ten-frame hive, put on a queen-excluder, and on top of that put another hive containing ten other frames filled with worker comb. You will in this way retard swarming till the nectar from clover is at its best. Then by putting the upper hive in place of the lower one with two section-supers on top, and by shaking the queen and all of the bees off their brood and out of the hive they wintered in, you will have the maximum number of bees in shape to give the best possible yield of section honey from clover and basswood, as the clover honey which has so far been stored in the upper hive will now be carried into the sections to give the queen place for her eggs. This honey, together with the nectar coming from the fields, will fill the sections as by magic if the nectar continues. But lest any one is led to think that all he needs to do is to "hold the dish and catch the porridge" in the manner above given, allow me to say that, up to the time of this writing, July 23, no "porridge" has come into any dish from either clover or basswood at the Doolittle and Clark apiaries, on account of an almost total failure of bloom from either, so that our only hope now is from buckwheat. Should this fail us, the bees will have to be fed for their winter supply.

Up to the year 1914 I have always classed 1869 as the poorest year for bees that I ever knew; but 1914 must, in the future, be the poorest for white honey, as 1869 gave 25 lbs. of white "box" honey from two old colonies in the spring. We had the maximum number of bees all right, and in good time; but with no bloom to provide any nectar, efforts count for naught.

GENERAL CORRESPONDENCE

COMB - BUILDING; SOME INTERESTING EXPERIMENTS WITH FOUNDATION FROM COLORED WAX

CONDENSED TRANSLATION BY J. A. HEBERLE, B. S.

Some fifteen years ago Editor Bohm began experiments with colored foundation. He used non-poisonous aniline dyes (red, yellow, green, and black), which he mixed thoroughly in the liquid wax. For white foundation he used bleached wax. All the foundation by this and other experimenters was made with the Rietsche foundation-press, not with foundation-mills. Such foundation is somewhat heavier, as it needs more wax. Bohm made comparatively thin sheets, and some of double the weight for the same size. Variously colored strips of foundation were neatly fitted together and put in a frame. This frame was the last one put in the brood-chamber, and after it the window. (The hives in Germany, even those which can be operated from above by taking the cover off, have a door opposite the entrance. To make a large hive—*i. e.,* a large brood-chamber—suit a small colony, a frame with window glass is used as a division-board, called " window " for short.) This enabled the experimenter, by just removing or opening the door, to observe the bees while drawing out the comb without disturbing them. The frame was given as the last one, because in that place the queen was less likely to deposit eggs in it. The bees accepted the foundation willingly.

Bohm summarized the results as follows: The bees gnawed off some of the wax from the heavy (thick) foundation, and used the wax thus obtained to draw out or lengthen the cells.

The differently colored strips of foundation enabled him to observe that the bees while building cells (drawing out the comb) do not remain stationary, but move while working to both sides, right and left, as shown by the colored streaks in the center where the bleached strip was used.

By the use of the thin foundation he found that the surplus wax was sufficient for only about half of the depth of the cells. These were finished with white wax that the bees produced themselves. He concludes from his experiments that heavy (thick) foundation for the brood-chamber is preferable, and asserts that *the bees produce wax themselves only when that furnished with the foundation is not sufficient in quantity.*

The experiments, Bohm asserts, proved that the bees are smart " critters," and are masters in adapting themselves to present conditions.

To see how far bees move while drawing out combs, the following experiment was made. A sheet of very thin tin was fitted into a frame. The tin was made very warm, and on one side three strips of foundation —red, black, and green, and on the other side a sheet of bleached foundation was laid. The warm tin caused some wax to melt, and made the foundation adhere firmly.

It was found that the bees, if not disturbed, did not, while building, go from one side of the comb to the other; that they moved only short distances, and confined their moving to the side of the comb they were at work on. If disturbed, the bees carry wax particles in their mandibles considerable distances. Bohm further asserts: " If brood is allowed in these colored combs the cappings will be of the same color, because the bees take the wax for the capping always from the wax of the brood-comb. Each finished comb shows on the outer cell border a thickening of the cell-edge, to strengthen them. The rims are somewhat T shaped. This strengthening or protecting edge becomes superfluous when the cells are capped, and this surplus wax is used in capping the cells. This material alone is insufficient. There is still another source of wax for capping brood. The continued pressure which is exerted on brood-combs from all directions on the wall of the cells at a comparatively high temperature causes the wax of the cell-walls to move gradually from the center of the comb toward the outer edge (rim), and is also used by the bees to cap the brood. (Bohm adds that in capping honey the process is somewhat modified.) The wax from the walls of the cells is gradually replaced by the cocoons. That explains why old brood-combs when melted give so much less wax than those in which brood has not been reared often. [Old combs might give less wax because the many cocoons become saturated with wax when the combs are melted, and it is difficult to remove the last trace of it from the cocoons.—J. A. H.]

If bees have to rear brood in old comb in which the wax of the cell-walls has been replaced by cocoons, the capping becomes whiter in color because the bees have to produce wax for the capping to make up for the deficiency.

The bees and drones must gnaw through the capping themselves before they can emerge. The parts of the cappings that fall off on to the bottom-board are carried out of the hive. The parts remaining on the cells are used for repairing them, and to replace the T-shaped rims on the edge of the cells, spoken of before, to strengthen the cells. Any excess of wax material that remains after the repairs are finished is collected and kept for future use in queen-cups similar in form that sometimes reach the size of a hazelnut.

Mr. Aisch made numerous experiments, and, like those of Editor Bohm, they were published in various journals. He experimented extensively to find suitable colors. The colors should be insoluble in wax, otherwise the demarcation line is blurred, and deductions from observations may be inaccurate. He found that with some colors soluble in wax the young nursing bees died of poison; further, the wax soluble colors showed only when dark-colored wax became mixed with such of a bright color. By using wax in soluble colors the bright-colored wax could be seen in the dark-colored wax combs.

After three years of experimenting with various colors, vermilion (cinnabar) was found to be the most suitable of all pigments tried.

The most satisfactory experiment was with a piece of red foundation about 3 in square. It was rapidly drawn out and finished with virgin wax which the bees produced themselves. Only very few small particles were carried to the right and left side, but quite an amount was carried downward. The most of these downward-carried particles of colored wax were used for the lower walls of the cells. These particles fell down; and, while building, the bees used it either by chance or on purpose.

An experiment with blue-colored Carnauba wax (a wax of vegetable origin) favors the hypothesis that it was an accidental use of the red wax in the above experiment. A frame with ordinary foundation received in the center a piece of foundation made of Carnauba wax colored with aniline blue soluble in alcohol. The ordinary wax foundation had been drawn out a little when the bees began to gnaw on the blue Carnauba foundation. Many particles of this blue Carnauba wax fell down into the partly drawn-out cells, and were used in drawing the cells out further. Mr. Aisch concludes that the blue particles below the blue-colored Carnauba wax were not carried down by the bees, but while gnawing off the superfluous parts they fell off and lodged on the partly drawn-out cells, and were thus accidentally used.

In another experiment a frame with red-colored wax and a frame with yellow foundation was used. On the lower part of the frame, with the yellow foundation, a small dish with small red-colored particles of wax, and with the frame of red foundation, a dish with small particles of yellow wax was used. Most of the wax was carried out of the hive. The particles of wax were too coarse. The experimenter recommends using very finely divided wax, and moistening it with honey. A small part of the wax from the dishes was used by the bees. The bees were then given moist honey cappings in the dishes, and they accepted them readily, using it to draw out combs. The bees gnaw wax off the midrib from foundation, because they need a very thin cell-bottom. They accept and use wax wherever they can get it.

To show *that bees want a thin cell-bottom*, foundation from ceresin, from Carnauba wax, from paraffin, and from beeswax in equal parts, were given. Some colonies gnawed off the pure ceresin, and the pure Carnauba wax foundation, and built drone-cells in their stead. Others accepted them. It was plainly shown that they tried to make the bottom of the cells (midrib) thinner, but only in rare instances were successful. Finally they built upon the heavy midrib cells out of their own wax.

Rev. Mr. Aisch does not agree with Editor Bohm that the bees build or make the edge of the cell stronger with a T-shaped rim. He holds that the finished cells have these reinforced edges only when there is a surplus of wax present; further, that the bees carry wax from honey cappings, not only from the entrance, but even when given in a dish in front of the hive, and that they gather and store it.

To see what bees would do with ceresin and mixtures of it and beeswax a piece of foundation of white ceresin was put in red-colored foundation. The bees drew out the colored foundation. The ceresin on one side showed mere traces of red wax. The other side was very slowly built, the bees using much red wax. Wax with 50 per cent of ceresin was colored red, and a piece of foundation from it put into a frame of foundation of bleached wax. The red-colored mixture was drawn out, but not as readily as pure wax. It was noticed that the bees liked to use the colored wax to glue and paste up all kinds of fissures, cracks, and crevices Did the bees suspect the wax or surmise a fraud? Inspector Hofmann, Munich, has also begun experimenting in the same line. The experiments will be continued in the spring. When the results are published I shall probably report the results to the readers of GLEANINGS.

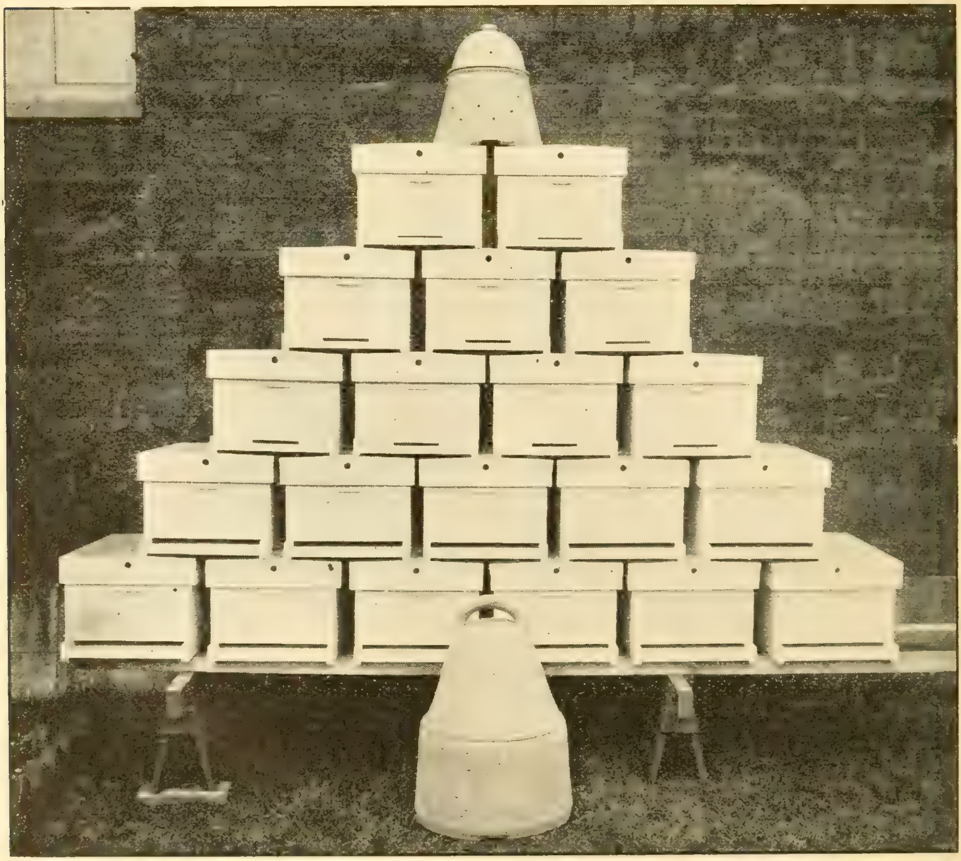
Markt Oberdorf, Bavaria, Germany.

THE NET-WEIGHT LAW

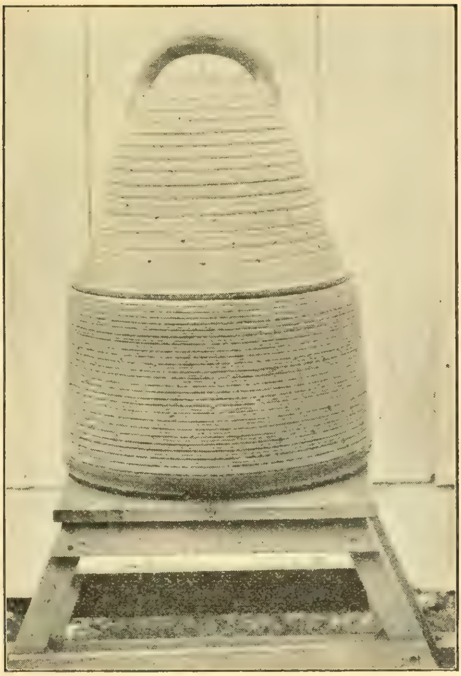
BY T. K. MASSIE

It may be remembered by the older readers of the bee-journals that for years past I have seriously objected to the use of light-weight sections, refusing to use them at all myself. It has always looked to me too much like taking the advantage of our customers to sell them a 12, 13, or 14 ounce section when the customers were thinking that they were getting a pound of honey for the price charged. I believed then, and do now, that such practice is an offense in the sight of God. I believed that he would use the works of man to punish those who followed that practice.

For several years I have used the 4¼ x 5 x1⅜ plain section, it being the nearest to the full pound section of any on the market. Now that we have to readjust ourselves on this matter, why not adopt a section with sufficient cubic capacity to hold a pound of honey? In localities like mine, where it is necessary to have the honey ripened up rapidly, a comb 1⅜ inches thick suits better than a thicker one. My latest experiments prove that, with honey produced in sections 1⅜ thick, it requires about 21 square inches of the comb honey to weigh 16 ounces. Making no allowance for the thickness of the sections nor the bee-spaces, the 4¼ x 5 x 1⅜ gives us 29 cubic inches. The 4¼ x 4¼x1½ sections give 27 cubic inches. Now, if we had a section 3¼ x 6½ x 1⅜ it would



Charles Y. Hake's new hives all ready for the bees, and a couple of old earthenware hives.



Earthenware hive 45 years old.

weigh, when thoroughly filled with honey of good body, 17 ounces gross, or one pound of honey net. Then why not adopt such a section? The *only* valid argument against the adoption of such a section is that it would require a little more wood to make it than it would to make a square one. But it would require no more wood to make this size of section plain than it does to make the square beeway sections. Then we should have the advantage that this size of section holds a pound when the others do not. It would take less wood to make this size of section than it would any of the beeway sections.

In this connection the article by Clark W. Wilson, page 515, July 1, one among the most practical articles which has appeared in GLEANINGS for some time, will apply. His sections are held in wide frames, the only practical way of using sections with two fence separators at each outside row. With 3¼ x 6½ sections, fellows who have learned the advantages of a divisible-brood-chamber hive could use the supers and brood-chambers interchangeably—could use the one for the other at will. The wide frames could also be used for the production of "chunk" honey or for extracting-frames.

All know that the natural inclination of a colony of bees is to work in the shape of a globe. But it seems to be impossible to produce a globular form of hive that would be practical. Then the next nearest figure to a globe is a cube. With all the arrangements suggested above we could have a hive cubical in form, combs 31 inches deep, 13 long, and about the same in width, and sections of full one-pound weight without extra trouble.

Hatcher, W. V.

[Under the new net-weight law it will be necessary to show the exact weight in ounces or minimum weight on every section of honey. The time has come when we should forget all about pounds. Practically all the sections on the market for years back have held a scant pound. In other words, a pound section has been a misnomer. There would be no advantage in using a larger section, for it is just as legitimate and just as "honest in the sight of God" to sell 12 or 13 ounces of honey as 16 or 17 ounces. The 4¼ x 5 x 1⅜ section that you recommend would not hold a pound under the new net-weight law.

In view of the fact that thousands and thousands of beekeepers have regular standard equipments for holding sections on the hive while being filled, it is impracticable and expensive to make any change; and so long as the weight shows in ounces no one can be deceived.—ED.]

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SOME EARTHENWARE HIVES 45 YEARS OLD

BY CHAS. Y. HAKE

I have just finished painting and getting ready for making increase when the weather will permit to do so. I have arranged twenty ten-frame hives (all empty) with two of my old-fashioned earthenware hives for a photograph. The bell-shaped hive is about 45 years old. You will notice the crack in the lid resembling the "Liberty Bell."

METAL COVERS WITH A PITCH TO SHED THE WATER.

You will also notice that the regular hive-covers I am using on these hives are somewhat different from the regular metal-covered tops. These taper each way from the peak in the center, and will allow the water to drain off instead of lying on top in little pools. I have them covered with No. 27 galvanized steel, and they cost me approximately 46½ cts. apiece (not painted) in the flat; also a hole at the top for ventilation. I consider this the best and most serviceable cover made, although I have not given it a thorough test.

York, Pa.

A MISSIONARY WHO WAS OBLIGED TO RESORT TO BEEKEEPING TO MAKE A LIVING

BY THEODORE LEE

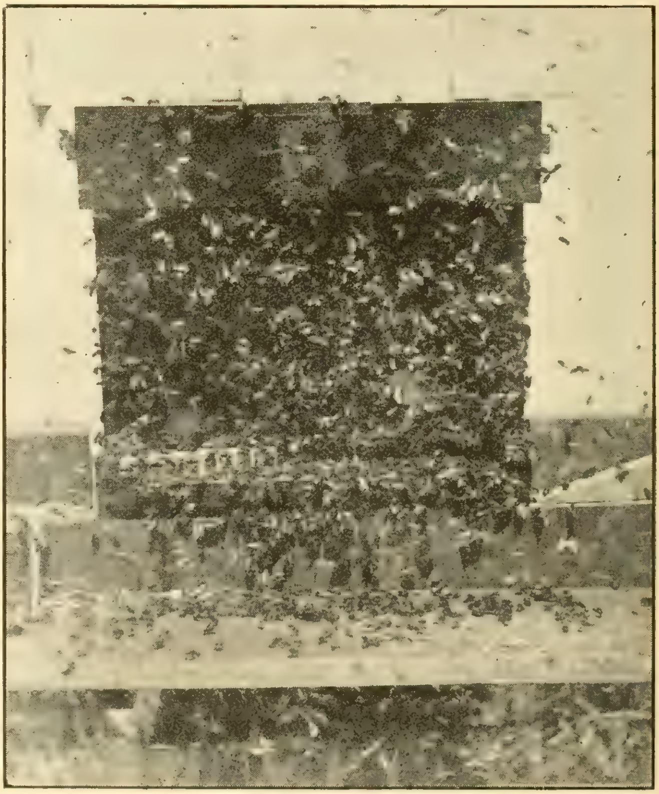
I am a missionary in Utah, and wishing to keep my boys busy during the summer months, and (later) aid them in securing a college education, I took up beekeeping as a side issue. The beginning was a colony of bees, the gift of a beekeeper. They were wintered in a cellar, came out boiling over with bees, and the beekeeper divided them for me. Another colony was purchased, but through lack of knowledge, and an accident, all were lost the following spring.

The next year (1906) thirteen colonies were bought in box hives from almost as many different persons. I studied and practiced beekeeping that summer. By fall all the colonies were hived in Acme hives, and I had sold $107 worth of honey.

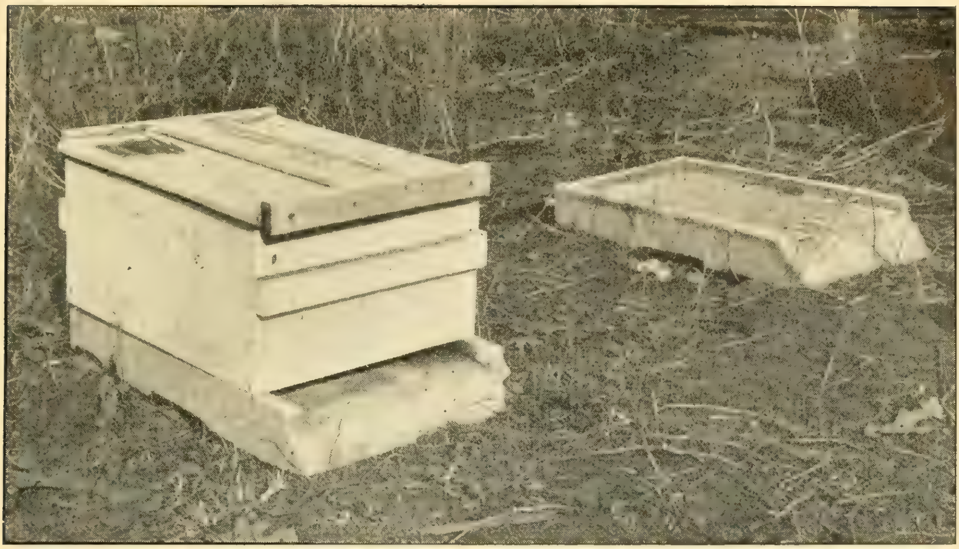
In 1907 more bees were bought, and a few were leased, making a total of 50. That was a great year for honey. Six hundred dollars' worth of honey was sold, the colonies netting $8.00 each. Then I leased 120 colonies of my beekeeper friend, and I purchased some more, making a total of 200. The leased bees, which had been shipped from California, made the best showing, and I sold $1524.40 worth of honey.

The next year the honey crop was a failure. That was not my only misfortune, for I found myself without a salary, and, like an old horse (I was nearing sixty) I was turned out to hustle for a living. I leased more bees, and that year loaded 606 cases in a car for Fish & Co., of Chicago, and received a check for $1608. My beekeeping friend now leased me a carload of bees, shipping them in from southern California in the spring of 1912. The California bees again did the best, and I received a check for $2207.10 for 854 cases of honey.

Last year (1913) was not as good a honey year as the previous one, but I harvested 830 cases, and received for my crop $2126.30. As my crop failure and loss of salary came the same year I had to mortgage my home in order to live. I am trying to redeem the place. As a side issue to the bees I am now doing a small dairy business. I milk three Jersey cows, and deliver on an



A swarm caught in the act of leaving.
Photographed by CHAS. Y. HAKE, York, Pa.



Harris' concrete hive-stand and bottom-board.

average thirty quarts of milk per day. My twin boys have been helping during the summers and attending school during winter. They with one sister are now attending Stanford University. I lack one milestone of being sixty. I am leading a strenuous life, but a happy one—too busy for the blues. The outdoor life has brought me renewed health, and I hope the bees and the cows will yet save the day.

Later, July 20.—The twin boys returned from Stanford in May. The season so far has been a busy one, and the most discouraging one of my experience. I have been obliged to move both of my apiaries. To safeguard against further moves I have bought 3½ acres of land which includes an acre of Elberta peach-trees, 150 in number. I am counting on about 400 bushels of peaches. I have now bought the bees, and they are in two yards. I fed them up to July 12. Besides a lot of unfinished sections, they have consumed nearly two tons of sugar at a cost of $200. I have fed less than the average, but have kept up the feed longer than some. A neighbor beekeeper has fed $1000 worth to less than 300 more colonies. I have leased 150 more colonies on the owner's land. The boys and I are just now putting on the first supers. They will all be on in a few days. This season may be my Waterloo in beekeeping, but I am not without hope. The alfalfa weevil took the first crop; but the second crop is beginning to bloom, and is in all stages of growth; so, with the help of sweet clover, we may have a continuous flow till the frost puts a period to our labors.

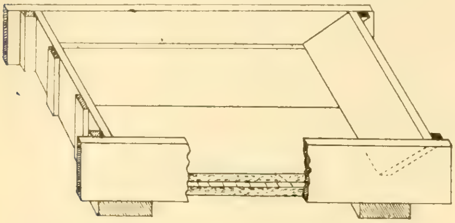
Spanish Fork, Utah.

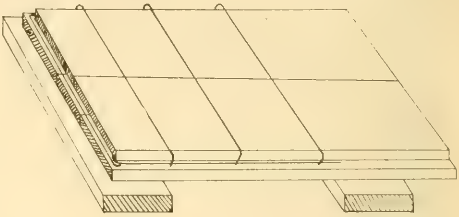
A REINFORCED CONCRETE HIVE-BOTTOM

BY E. A. HARRIS

The accompanying photograph shows a hive-bottom made of concrete reinforced with wire. It is a stand for the man who has a permanent apiary and winters outside. It is simple, cheap, weather-proof, and lasting. Compared with other concrete stands it is light. Unlike others it is a complete bottom as well as a stand. It is a plain two-inch slab of concrete with a sloping front for an alighting-board, and a rim on the two sides and back. This stand is made in a wooden mold. The bottom of the mold is made by nailing pine boards together with cleats. The sides are four cleated pieces. The whole is fastened together by putting a strip with a block nailed on each end across the top and over the sides. The drawings show every thing but the clamp much more clearly than a mere description.

In making a bottom the box-like mold is put together, and three of the reinforcing wires are laid around the edge in what is to be the rim with just a little bit of cement under them to hold them up just high enough to be in the center of the finished rim. A part of the wet concrete is now packed in. Then the other wires are laid across the bottom of the mold as shown in drawing, and the rest of the wet mixture tamped in. Two inches or two and a half is enough. A handle as shown in the photograph is tamped on each side, and the mold is allowed to rest for a day, when the concrete will have set enough for the newly made stand to be taken out. It should be handled carefully, and dampened every day or so for a week, like any other concrete block, to cure it. The rims will not crack off, because of the way in which the reinforcing wires are placed. The ends of the cross-wires should be carefully bent and pushed down in the rim.





In practice it is best to have five or six molds and make up this many bottoms every day or two until the required number is obtained. I have had quite a number of these bottoms for three or four years. They have given excellent service, and are now as good as if not better than they were at the time they were made. The material costs about 15 cts. each.

University, Ala.

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SOME EXPERIENCES OF AN AMATEUR BEEKEEPER

Confining the Queen Below on One Frame of Brood

BY W. A. DUNTON, M. D.

Last spring when the hives were full to overflowing with bees I placed the queen on one frame of brood and seven frames with narrow starters below, putting all the rest of the brood in a super with a queen-excluder between. Nearly all the bees went above with the brood, only about a handful remaining below with the queen. In some of the hives there was a small space at the side of the excluder caused by the upper edges of the hive warping outward. In these hives the queen invariably went up with the brood. In other hives I left four frames of brood below. In all of these the queen stayed below when there was an excluder; but when there was no excluder they nearly always went into the super, because it is warmer there. Queen-cells were started at once when the queen was confined below, but most of those cells I destroyed before they hatched. Where the cells were not destroyed, the queens that hatched from them were killed by the bees when they were two or three days old. Some of the queens so left below on one frame of brood got disgusted and swarmed out with a handful of bees.

Some of the brood so placed above early in the season chilled to death during the cold California nights because too many of the bees clustered below with the queen. About the first of May, when the bees were very strong, and there was danger of swarming, I placed four frames of brood above and four below, alternating with frames having narrow starters, but having no excluders. In these hives all the brood was well cared for, swarming was prevented, and while the brood was hatching they worked on all the combs equally, but the queen went above in nearly all hives so treated. In some hives the queen stayed below, the bees building new combs in the empty frames and neglecting the empty frames placed in the super. In the hives where the queen went above, the lower empties were neglected; and if the honey-flow was not good, in some cases they partly destroyed the drawn-out comb in the lower hive, gnawing it thin in places. These were always white combs, none of the old black combs being so gnawed. When the honey-flow was good, and the queen laying in the super, the lower drawn combs were in some hives filled with honey contrary to the usual custom, which is to place all stores above. Some active queens kept all the combs above and below filled completely full of eggs in all cells not containing honey. When the queen is below, the new comb is made worker size; and when she is above, the worker comb is built in that compartment.

KILLING DRONES.

For the satisfaction of those who think that workers will not kill drones, let them try the following experiment: Fill a super with capped drone brood over a strong colony with a queen-excluder. The result is one of the most tragic in all the life-history of bees. When the cover is raised a few days later, the first thing noticed is the deep baritone hum of several thousands of drones, expressing fear and agony. The second thing to be observed is the presence of several thousand workers running about, buzzing angrily, some tugging at dead drones, others at living ones, all with the same object in view—the removal of the drones.

Raising the super you will find on top of the queen-excluder probably two handfuls of dead drones in every imaginable state of mutilation, the favorite form being decapitation. You will see rows of heads lying upon the slots of the excluder which they cannot quite pass through.

If the drones were starving or dying of old age the great mortality could be explained otherwise; but it is plainly a slaughter of the defenseless drones—not a quick merciful death by stinging, but by being literally pulled apart limb by limb until they are in pieces small enough to eject from the hive, because there is plenty of honey in the hive, a flow of nectar, and a good force of bees to gather it. Moreover, the drones are all young and vigorous.

A BETTER WAY TO DISPOSE OF DRONE COMB

Place a superful of drone brood over a colony with a young queen, without an excluder. The young vigorous queen will not lay any eggs in the drone-cells; so in 25 days they will be all emptied of brood, cleaned out, and probably with many cells full of honey. They can afterward be used as extracting-combs.

HOW TO FILL ALL BROOD-CHAMBERS WITH WORKER-COMB.

Give your bees plenty of empty frames with half-inch starters. All worker comb is to be placed in the brood-chambers, and all drone comb to be placed in supers. The drone-cells are just as good as worker for extracting combs. By this plan it is not necessary to use full sheets of foundation, as plenty of worker comb will be made at all times. When, as frequently happens, one half is worker and half drone comb, place above. Life is too short to cut out drone comb from a frame or to tie worker comb in. If the honey-flow is good the bees will probably complete a cut comb with drone-cells.

THE BEST WAY TO MAKE INCREASE.

Shake off all bees from four combs excepting the young ones. Place these combs in an empty hive without a super. Turn the old hive at right angles, and place the hive containing the four combs in its place. The workers come back and fill the hive; and, finding no queen, go to work almost immediately to make several. There is such a mighty force of bees on a few combs that ideal conditions exist, and the result is some of the fattest and best queen-cells I have ever seen.

In seven days I move the four combs to a new location, cut out all queen-cells but two, and give the rest to new nuclei. The old hive is turned back into its old position, most of the old workers come home, find their mother, and live happily ever after.

Los Angeles, Cal.

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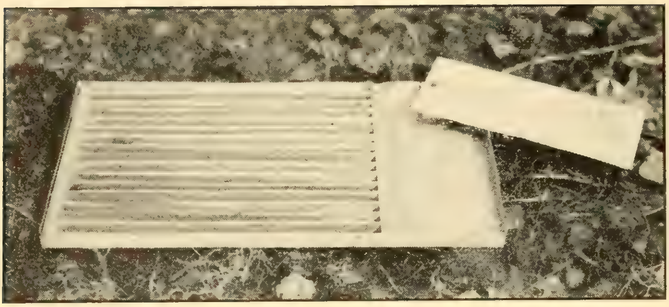
A BOTTOM-BOARD FEEDER

BY JAY SMITH

In the Feb. 15th issue of 1913 I described a feeder which I had built into the back part of the bottom-board. Feed was poured into it through a little door in the back. After using this feeder another year, I find it fills the bill very nicely, yet it has two little defects that I have overcome in another model which is illustrated by the accompanying engraving.

Some of the feeders on the market are good for stimulative purposes; others are good for fall feeding. None are exactly satisfactory for both. My built-in feeder did not hold enough for fall feeding; and if the bottom-board was not reversed in winter it would become clogged with dead bees.

The new feeder I used the past season, and find it fills the bill nicely for any kind of feeding, and can be put into the hive in a jiffy without disturbing the bees. Being made of a good quality of galvanized iron, it will not leak; and, if taken care of, it should last a lifetime. It is made in the form of a shallow tray with small slats in it, so that the bees will not drown. It is shallow enough so that it can be shoved into the entrance of any hive having a ⅞-inch opening. It is then raised up and a wedge-



Jay Smith's feeder designed to slip into the entrance under the combs. It is not as wide as it looks, for it does not extend over the full width of hive.

shaped piece of wood forced under it which makes it solid as well as bee-tight, and also brings it up level, as all hives should be slightly tilted forward. It is fitted with a screen so that the bees cannot fly out while being fed.

It will hold from four to five pounds of honey or thick syrup which, I believe, is as much as bees should be given at once for fall feeding. If given more it will cool before they can take it all; and if the weather is cold they will not take it cold. It also contracts the entrance, which is necessary in cold weather, and this feature prevents robbing.

To feed, all that is necessary is to swing back the cover and pour in the feed. One hundred colonies can be fed in fifteen or twenty minutes if each hive has a feeder. When not in use it can be placed in the honey-house. A large number can be put in a small place, as they occupy little room.

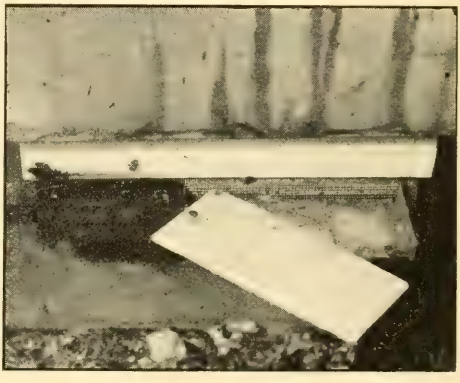
Last year while feeding in cool weather I noticed that the bees would take feed from this feeder when they would not take it any other way—not even from my original feeder built in the bottom-board. The reason, I believe, was because the entrance was contracted by the feeder, keeping the bees as well as the feed warm.

It is not my intention to "knock" on any feeder; but as improvement is what we are all striving for, I do not believe any one will object if I make a few comparisons. The Boardman feeder I have used in a small way for eight years. It will incite robbers if the colony is not strong. Bees will not take feed from it in cool weather. I have had colonies refuse to take feed from it in May. On cool nights the syrup cools and contracts and takes in air. Then in the morning a lot will leak out, making a mussy mess, wasting the feed and inviting robbers. The Boardman, of course, is not good for fall feeding, and was not intended for such. Furthermore, it is too slow. With my feeder I can feed ten in the time it would take me to feed one with the Boardman.

The Alexander feeder, I think, is the only one approaching the metal feeder described above. The two serious objections to the Alexander are that it takes so long to fit it to the hive, and it is too small for fall feeding. Another fault with all feeders is, they are made of wood. No matter how much you wax them, when laid away they will shrink and leak. The result is that it takes so much time to get ready to feed that the busy man cannot do it.

I notice that more and more beekeepers are coming to believe that slow feeding to stimulate the queen does not pay; that if there are plenty of stores in the hive the colony will be just as strong. I believe this is right if other factors besides plenty of stores did not enter in. Bees should have plenty of stores to winter on, plenty of stores to build up on in the spring, and plenty of room for the queen to lay. This would take a very large hive—too large for successful wintering, and too large to keep the bees warm during brood-rearing in the spring.

So the solution for those using the regular eight or ten frame hive is to feed in the fall, and then, after brood-rearing is well on the way in the spring, to feed about a pint of good warm syrup every day till the hive is filled with brood. I have tried giving it slowly as with the Boardman, and giving it to them so they can get it all in about ten minutes, and I can see no difference as to results. When given so they can get the whole pint at once, they store it into the



The front of one of Jay Smith's hives, showing the feeder in position.

comb and then take it out again and work it over till it is thick. During this process the queen is fed just as well as she would be if the bees got it a drop at a time.

Many will say that I should have the colonies fed up before it is cold weather. That depends on the locality. Here the bees work on fall flowers till after frost. Then the supers are taken off, and perhaps then the weather turns cold when the bees should be fed.

I was caught this way two years ago. There were lots of flowers in the field. It rained so the bees could not get at them. Later it turned cold, and I had only a few feeders. I got some bakepans and filled them with warm syrup and put them in the supers. The bees would take only a little while it was warm. The result was that the colonies went into winter quarters short of stores, and I lost most of them during the winter. If I had had enough of the present feeders I could have saved every colony.

Vincennes, Ind.

A WHOLE APIARY GONE MAD WITH WHOLESALE ROBBING

BY CARY W. REES

One morning, about a year ago, I was at the home of a neighbor, Mr. Luther Wolfe. We were standing about fifteen steps from one of his apiaries when we thought we saw one of the colonies swarming. It was the first one in the row next to us, and a strong colony. When we went near we saw it was being robbed instead of swarming. There were about thirty colonies in the yard, all strong, and, with perhaps one or two exceptions, well filled with honey. They were in two rows, from three to five feet apart.

Immediately we commenced to break off small limbs with green leaves on them and cover the entrance and front of the hive that was being robbed. The robbers then attacked the next hive, and we covered the front of that the same way. Then they attacked the next hive; and so on down the row they rushed from one hive to another, and spread almost at once over the apiary. In a very few minutes every hive in the yard was robbing or being robbed, the like of which I never saw before.

It appeared as though the contents of each hive were free to all, and that every colony was determined to take all the honey its neighbor had; and the neigbhbor was so busy getting honey from some other colony that they did not appear to know that their own honey was being taken. I had an apiary of 160 colonies about a quarter of a mile away. Some of these bees, although they had water near by, were coming to a pool that was within fifteen steps of these bees, and flew almost directly over them as they came to and from this water. At first none of my bees seemed to be engaged in the robbing; but after a bit we could see that some of them were at it too.

It then appeared that we were helpless,

Covering every hive in an apiary with hay in a frantic effort to stop wholesale robbing.

Mr. Jacobsen's apiary on Little River.

Mr. Jacob en and Mr. James Allen in the apiary.

and that the apiary would be entirely destroyed. Mr. Wolfe had men stacking hay about fifty yards away. We ran to the stack and carried armfuls of hay and covered the entrances to many of the hives. We also had Mrs. Wolfe and nearly all the children carrying water, but we could not get the hay from the stack fast enough. Fortunately a part of the next load of hay for the stack fell off the wagon close by. The driver did not stay to reload it, but hurried away. With plenty of hay near by, so we could nearly cover the hives with it, and plenty of water on the spot, and a good spray-pump, we got the bees quiet at last. For some time we had feared that my bees would carry all the honey in the apiary away.

The next day we contracted all the entrances to the hives to a small space, and watched them closely all day; and when any robbing commenced we showered them with water from the spray-pump, and in this way had no more trouble. It afterward appeared that there was not much damage done.

Pearsall, Texas.

[One who has not had the experience can scarcely realize the seriousness of a bad case of robbing. Almost always, in an instance of this kind, the bees are started in some way as by exposed honey or by the combination of a weak colony with lots of stores and a large entrance. During a honey dearth look out.—Ed.]

ANOTHER NEW ZEALAND FIELD DAY

BY E. G. WARD

One of the most successful field days of the Canterbury Beekeepers' Association was held on Saturday, at the apiary of the vice-president, Mr. C. A. Jacobsen, Little River. The members and their friends left the Square at 8:30, and arrived at Little River about 11 A.M., being welcomed by Mr. Jacobsen.

The president, Mr. E. G. Ward, apologized for the absence of Mr. T. W. Kirk, who found it impossible to be present, and introduced Mr. James Allen, president of the National Association, and Mr. L. Bowman, Apiary Inspector of the Canterbury Province, and expressed pleasure at the attendance.

A general introduction then took place, and lunch was partaken of. The weather was ideal, and the time was profitably spent in demonstrating, and addresses by Mr. Allen, the president, and the host.

Mr. A. Ireland spoke on the advantage of co-operation. He referred to what had been done some two years back to interest beekeepers in the matter, and said that the present time was opportune to push on with the scheme. He thought that honey could and ought to be put up in small quantities by the producers, who should form a company for that purpose and supply the shopkeepers, who really did not care to handle the product themselves. By this means the beekeepers would reap a substantial benefit. Bee material could be handled by the company also, as dealers are not so well acquainted with the wants of beekeepers as they are themselves. Mr. Jacobsen then gave a valuable demonstration on queen-rearing, and showed how this was done. He exhibited queen-cells in various stages of development, and gave many valuable hints to those present.

Mr. L. Bowman gave an address, "Pollen and its Uses in Brood-rearing." He went exhaustively into the matter, and showed what a necessary element the honeybee is in the fertilization of flowers, while at the same time giving the human race such a valuable food in the honey gathered. He also enlarged on the necessity of having good queens, and supplemented the remarks of Mr. Jacobsen. He thought that the black bee had been neglected, and too much made of the Italian.

E. G. Ward and three of his best colonies. No. 12, 188 lbs., and reared 25 queens; No. 24, 197 lbs., and reared 12 queens; No. 2, 146 lbs. The six best colonies stored 223, 197, 196, 188, 171, and 146 pounds respectively. Another picture of Mr. Ward's apiary appears on the cover for this issue.

Mr. Jacobsen took the members round his apiary, and explained fully his methods of working, illustrating his remarks in a practical manner.

Tea was then partaken of, and after the usual farewell speeches and votes of thanks to the host and hostess, the party left for home.

ANNUAL CONFERENCE OF NEW ZEALAND BEEKEEPERS.

The most important annual conference of New Zealand beekeepers yet held was concluded in Wellington on June 19 after a three-days' sitting. The conference was under the auspices of the National Beekeepers' Association of New Zealand, which was formed last year. About 50 beekeepers were present from all parts of the Dominion, and the proceedings were of an important and interesting nature. Up till the conference just ended, the industry has been in a more or less disorganized state, but it will now be possible for all existing associations to join with the National on equitable terms, as a constitution has been adopted which should meet the needs of individuals as well as those associations which have not up to the present been attached to the National. The National is designed to embrace all the beekeepers of the Dominion, whereas the smaller associations were only of local importance. One strong organization will have tremendous weight compared with a number of small associations. A sliding scale of fees has been adopted which will insure for the affiliated associations sufficient funds to be of good service locally, and still contribute a substantial sum to the National funds.

The conference was opened by the Hon. R. H. Rhodes, postmaster-general. He apol-

Members of the Canterbury Beekeepers' Association at the field meeting held at Mr. Jacobsen's apiary. Front row, reading from left to right, Miss Mackay, Sec. C. B. A.; Mr. James Allan, President N. Z. B. A.; E. G. Ward, President C. B. A.; Mr. R. McKnight, Sec. Christchurch Branch C. B. A.

ogized for the absence of the Premier, the Hon. W. F. Massey, Minister of Agriculture, who was out of town, and promised for Mr. Massey a sympathetic consideration of any requests that might be laid before him.

The annual report stated that the membership is now 256, and it was anticipated that this would be doubled during the coming year. One of last year's activities was to have been a systematic scheme of advertising honey; but on account of lack of funds it had been found impossible to do any thing in this direction. The balance-sheet showed a small debit balance.

Three sessions were held daily. The evening sessions were given up to bee subjects only, and several interesting and instructive papers were read and demonstrations given. Mr. J. S. Cottrell's paper on how to secure an increase of 100 per cent in the crop without increasing the number of colonies was especially good. He dwelt on the importance of having young queens, and suggested the establishment of a queen-rearing apiary under government control in the Cook Islands, where conditions are ideal for the purpose. At a later stage a deputation waited on the Hon. R. H. Rhodes, and laid the views of the conference before him. A very sympathetic hearing was given, and there seems to be every hope that the recommendations will be adopted in the near future.

An address by Mr. F. C. Baines on feeders and capping-melters was also particularly good. He showed a modification of the Severn capping-melter, which particularly took the fancy of those present. He showed how to finish up the day's work with cappings all melted and the honey separated without injury to the honey. His remarks on hastening the granulation of honey were also interesting.

Mr. T. W. Kirk, Director of Orchards and Apiaries Division of the Department of Agriculture, on the second day gave an address on the Department's intentions in reference to the Apiaries Act. He traced the history of what had been done from the earliest days of the industry up to the present time. He has always taken a very keen interest in the beekeeping industry, and his help in furthering legislation has been invaluable. When the Apiaries Act he outlined is law, New Zealand will have an act which will be ahead of any thing else of the kind in any part of the world.

On the third day Mr. Geo. H. Buckridge gave an address on his personal observations of the American and British honey markets. He found that the British markets especially are not in such a flourishing condition as he would like. This was due partly to labor troubles and want of proper management in bringing New Zealand honey before the public. He thought, however, that there is a great future for New Zealand honey when put up in the right way, and exported through the right channel on well-organized lines.

Mr. H. W. Gilling, of Taranaki, gave an

address on co-operation. Last year the New Zealand Honey-producers' Co-operative Association was formed in Taranaki, and Mr. Gilling was the prime mover in the movement. He explained the lines the Taranaki beekeepers were working on, and stated that the success attained was very encouraging. The Canterbury Beekeepers' Association and the Waikato Beekeepers' Association, both of which were well represented at the conference, took the opportunity to discuss the situation, and it is probable that both these associations will fall in line, and a strong co-operative association be formed, which will embrace nearly the whole Dominion.

The desirability of starting a monthly bee-journal was brought up by the executive, and a committee was set up to examine figures submitted, and the lines on which it was proposed to run it. The committee reported favorably, and the first number will probably appear in August. It was thought that 500 subscribers to begin with would pay expenses, and about 100 promises were made in the room. The first three issues will contain a full report of the conference proceedings.

A grant of $100 was made toward expenses by the Government through the good offices of Mr. T. W. Kirk, and a hearty vote of thanks to him carried by acclamation.

Reference was made to the forthcoming Panama exposition, and it was stated that both the Canterbury and Waikato Associations would be sending exhibits. It was learned that Mr. J. S. Cottrell, President of the Waikato Association, and Vice-president of the National Association, would be attending the exposition, and he was unanimously appointed to represent the National Association in particular and New Zealand beekeepers in general, while there. (I take the opportunity here to solicit for Mr. Cottrell any assistance or advice our American or Canadian friends can give him, and can assure them that it will be greatly appreciated. Mr. Cottrell will be found to be " right up to date " in all bee matters relating to New Zealand.)

It was learned with regret that Mr. Isaac Hopkins, who is recognized as the father of beekeeping in New Zealand, would leave the Dominion for good the coming year. It was resolved to place on record the sincere appreciation of all New Zealand beekeepers of Mr. Hopkins' many years of work in the interests of the industry. He will not be allowed to leave these shores without some small memento of the kindly feeling toward him.

The Government inspectors gave a demonstration of the methods of grading honey for export, and answered a number of questions.

The Conference closed after three days of solid work after electing the following officers for the ensuing year: President, James Allen, Southland; Vice-president, J. S. Cottrell, Waikato; Secretary-treasurer, R. W. Brickell, Dunedin; Auditor, Mr. F.C. Bains, Taranaki; North Island Representatives, H. W. Gilling, Taranaki, J. Hutchinson, Waikato; South Island Representatives, A. Ireland, Canterbury, C. A. Jacobsen, Canterbury.

Christchurch, N. Z.

LATE SUMMER AND FALL PROSPECTS AROUND CINCINNATI, OHIO

BY HENRY REDDERT

It is raining now, and this rain may save the fall aster. Clover is burned out of the ground. Sweet clover bloomed, and is still blooming in spots where the sun hadn't so much force; but it is limited in area to a great extent, this not being a sweet-clover year. Next year sweet clover will be in its glory in this locality if weather conditions are favorable. We had a cool wet spring—cool at night, warm at day time. I've noticed in the past years cold weather in the early spring is not very favorable to sweet clover. Hot moist weather is when sweet clover flows abundantly.

We had some locust bloom, but the cool nights evaporated the nectar. The only time the bees worked on it on sunny days was from about two o'clock in the afternoon to sundown. This was nectar secreted during the morning hours. Any one walking through a locust woods while in bloom on cool nights will scent the evaporating nectar a mile off.

These conditions seem not to affect the small white clover provided it has an occasional rain. Last year was a pure white-clover season—fruit-bloom, basswood, locust, and the various other wild bloom affecting only the rearing of strong colonies. Up to the present we have had but two rains the past two months. One amounted to almost nothing, but the second one saved our corn crop. One of our

Honey exhibit at the Monmouth Poultry Club show, Asbury Park, N. J., Nov. 24-29, 1913.

prominent beekeepers along the Big Miami River wrote recently he would not get one pound of honey out of about 100 colonies, owing to the drouth. Conditions are not quite so bad around Cincinnati—that is, in its vicinity. During a long drouth bees are afforded better forage among the hills and valleys than in the level fields. On the level the sun burns down like fire all day, while in the hills there are always spots that the sun touches only at certain times of the day; hence the moisture collected in the early spring doesn't evaporate so quickly. If the bees in this country along the Big Miami River, of which there are many, are so destitute of honey, their masters will all be forced to feed for the winter unless aster provides them with nectar.

I haven't seen so much aster in many years as now; yet it is problematical if we receive a good flow during fall bloom, the frosts at times setting in early.

Cincinnati, O., July 26.

CASH PREMIUMS FOR HONEY AT A POULTRY SHOW

BY E. G. CARR

What was probably the best exhibit of apiarian products and demonstrations ever given before a popular audience in New Jersey was held in connection with the annual show of the Monmouth County Poultry Club at Asbury Park, Nov. 24-29. Cash premiums were offered by the club for the best Italian bees, best case of comb honey, best 25 lbs. of extracted honey, best display of wax, 25 lbs. or more; best display of comb honey, and for the best display of extracted honey, both liquid and granulated. There were also offered $5.00 in gold and three silver cups as specials.

The winnings were as follows: Bees, display of comb honey, and display of extracted, C. H. Root, Red Bank. Best extracted, 1st, C. H. Root, Red Bank; 2d, W. Garrabrant, Chester, N. J.; comb honey, 1st, N. G. Noble, Lakewood; 2d, E. G. Carr, New

Egypt; 3d, C. H. Root, Red Bank; 4th, W. Garrabant. Wax, 1st, E. G. Carr; 2d, C. H. Root.

Twice each day extracting was demonstrated, and attracted much attention. We believe this did much to remove the prejudice found against extracted honey by those who probably had never sampled any thing but a very poor box-hive product, as many expressed surprise when given a taste from the extractor.

Before the extracting demonstration, a short sketch was given of the development of honey-production from the time it was gathered from the rocks and hollow trees to the present, illustrated by a straw skep, box hive, and a modern frame hive.

Each evening handling live bees in a cage was demonstrated by the writer; but it cannot be said this had any value except to attract the crowd and give the attendants an opportunity to call their attention to honey and give them some facts regarding its food value.

About 1000 lbs. of honey was on display, together with apiarian utensils.

The illustration gives some idea of the exhibit, but, of course, does not show the honey well.

New Egypt, N. J.

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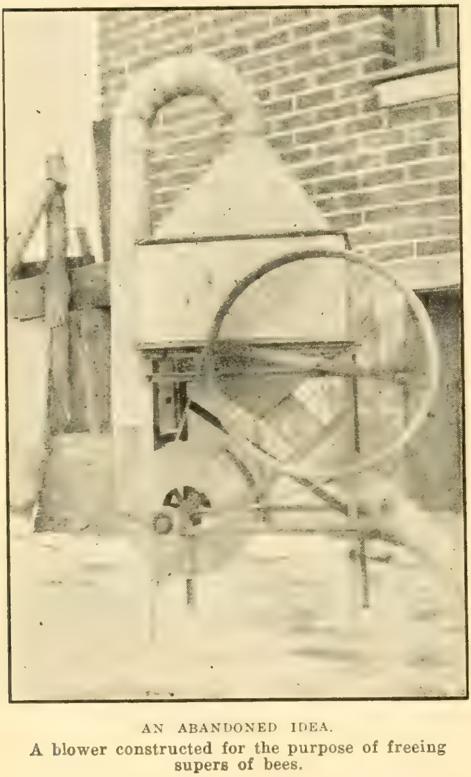
FREEING COMBS OF BEES; WIRE-CLOTH ESCAPE-FRAME; A BEE BLOWER

BY ARTHUR F. HODGSON

Freeing supers of bees is a vital question to all large producers of either comb or extracted honey, and one which will permit of careful study. Blowing bees off the combs one super at a time, and delivering them to the front of the hive from which they were taken, is possible, as I will illustrate; yet I unhesitatingly pronounce the method wrong, and strongly advocate the use of my screen-cloth escape-board as given in GLEANINGS for Aug. 15, 1913.



AN ABANDONED IDEA.
A blower constructed for the purpose of freeing supers of bees.

In the season of 1908 I made and used a hand-power bee-blower. The accompanying photograph gives some idea of the construction of the machine. Being mounted on a truck it is easily moved from hive to hive. To operate, the blower is placed in front of hive. A super is removed and set in place on the machine. The hood is swung in position above the super, which now becomes an air-tight box except for the exit, the air-inlet for the present being closed. The crank is now turned until sufficient speed is developed, when the air is allowed to pass through the super of combs, the bees being dislodged by the sudden blast. A series of spreaders and conductors are arranged in the hood of the machine to direct the air uniformly between the combs. The air must pass through the super very suddenly and with great force, otherwise the bees become prepared and hang on until they are practically torn off. Without going into detail, this is the description and action of the blower. Others may see improvements and take up with this method. However, I consider it entirely too mechanical and too unnatural to become practical.

This caused me to experiment along another line, with the result that I discovered screen-wire escape-frames to be the best and most agreeable inducement in causing bees to leave their combs. Why this violent treatment when the same result can be obtained peacefully through the earnest desire of the bees themselves?

Jarvis, Ont., Canada.

A NEW DANGER FROM SPRAYING

Bees Poisoned by Working on Red Clover Under the Trees that are Covered with the Spray

BY JAMES G. BROWN

I have noticed in many numbers of GLEANINGS, articles on spray poison, and feel that I should be remiss in my duty as a member of the beekeeping fraternity if I failed to call your attention to a condition that we of the orchard section of western Colorado are facing along this line.

Until recent years clean cultivation was the rule in all orchards here; but the soil began showing signs of exhaustion, and the fruit-men began sowing legumes to rebuild the soil. In the Montrose section, practically all orchards are sown to red clover, and this is becoming an important honey-plant, as it comes between fruit-bloom and alfalfa, and continues furnishing nectar until long after the sweet clover has bloomed out. This year, as never before, the bees have been working the clover; and as it is covered with spray poison falling from the trees the bees are killed by the tens of thousands.

On June 2 I noticed a few bees crawling from the entrances and running from the hives for a few feet and then die " on foot." Each morning thereafter the number became greater until it was impossible to walk down through the groups of hives without walking on bees. The only plant in my locality furnishing nectar was red clover. I visited some orchards near by and discovered the cause of my trouble. The clover was gray from its coat of arsenate of lead, and the bees were working all the near orchards so sprayed.

I have never seen bees so strong in May as was this apiary. At the beginning of June it contained 123 colonies, most of them two-story ten-framed hives. June 17 there were 98. July 2 there were 95 colonies or nuclei occupying but two or three frames in one story. The bees died so rapidly that the cluster could not cover a fourth of the brood unhatched, and the end is not yet.

I called attention to the matter, and other beekeepers having outyards within reach of the orchards found the same conditions prevailing. Mr. D. J. Harris lost 25 out of one yard of 60. Mr. J. J. Corbut lost heavily, and moved out of this district. Mr. J. C. Mathews moved one yard of 130 colonies to prevent further decimation; and to-day, July 6, O. C. Skinner and Wm. Corbut, both extensive beekeepers, are preparing to move.

While we have a law regulating the spraying of fruit-trees while in bloom, it does not cover our case here.

Our local association has held two meetings to consider what could be done; and while a remedy could be found in the orchardist cutting his clover before he sprayed, the matter is entirely optional with him, and the association has advised all its members to move out of the fruit section, and they are going. There will be no bees to speak of in reach of the orchards next bloom-time.

Many of the orchard men, realizing the real worth of the bees to the orchard, have done their utmost to prevent the bees from going away; but there is always the indifferent fellow, and he will be in supreme command until our next legislature meets.

Montrose, Colo.

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BEES DO NOT SPREAD PEAR-BLIGHT

BY L. V. DIX

This question of bees spreading blight comes up quite often, and I am surprised at the theories advanced as to the cause of its spread. I have had a life-long experience in the growing of pears, and during the last twenty years I have been growing them in a commercial way. This present season confirms me more thoroughly than ever of the great mistake that has been made by some who claim to be expert horticulturists as to the cause and spread of pear-blight.

In 1912 my crop of pears sold amounted to 6000 bushels. No blight appeared until after the fruit was as large as hickory-nuts, and then it did no damage, for it helped to thin the fruit to some extent, which is needed. At this date, April 30, I have a better prospect for a crop of pears than in 1912. The fruit is all set, no signs of blight yet, but I expect it to appear to a greater or less extent within the next twenty days.

Blight does not live over winter in so-called blight-pockets, but is caused each season that it appears by atmospheric and weather conditions.

In all my life-long experience I never have seen any sweet sticky substance oozing out of so-called hold-over blight-pockets. I have sixteen colonies of bees right at one pear-orchard, and there are other colonies not far off; so if bees caused blight to spread I ought to have it all through my orchard right now. As a matter of fact, the fruit is as large as cherries at this date, and there is not the least sign of blight. Some seasons we are entirely exempt from it, although during the previous season it might have been very bad.

We can all tell when our fruit is killed by cold; then why are we not able to tell when it is killed by heat instead of blaming our most useful insect, the bee?

Jefferson City, April 30.

THE FRIENDLINESS OF BEEMEN

BY MRS. ARMSTRONG ALLEN

[Mrs. Allen is the author of a number of delightful little poems relating to bees. In the last issue and in this one are samples of her work.—Ed.]

If we were an amateurish sort of grocer and went visiting the successful grocers of our vicinity, I wonder if they would take us all through their stores and show us things and tell us things, and send us on our way with their best wishes, and the assurance that, if there is any thing we want to know at any time, come and ask them, and they'll help us out all they can. Now, may be that's just what they would do. I don't know We've never been a grocer!

But this I do know. Out under our cherry-tree, in the spring of 1913 we proudly placed a newly purchased hive of bees; into our bookcase we slipped the A B C and X Y Z of Bee Culture, and on our reading-table a copy of Gleanings came dropping twice every month. The bees swarmed in May, and then there were two white hives under the cherry-tree, and in our visions of the future there were (and are) many hives under many trees, each one emitting its fascinating hum. So we decided to visit some successful apiarists. And we hereby pay our hearty and sincere tribute of genuine appreciation to the courtesy and friendliness and well-wishing of these neighborly beemen.

About two weeks after our memorable first swarm, we took a trip to the country. (We are in the city ourselves—backlotters.) We first visited one of the apiaries of Buchanan Brothers, near Franklin, and they put veils on us and took us around while they did various things—cut out queen-cells here, and put on a super there, and they answered a score of questions and offered the friendliest advice. One most interesting thing was their simple introduction of a new queen. Mr. Buchanan just put her down on the frame, and that was all there was to it —no smoking, no fuss of any kind. She had been allowed to become hungry, and seemed to request a bit of hospitality for her neglected royalty, and the bees just welcomed her in and took care of her straightway. Then our hosts kindly motored us over to Franklin, and after dinner we drove to the home apiary and queen-yard of Mr. John M. Davis, of Spring Hill, to whom all beemen in this part of the country take off willing hats. Here too we were shown genuine cordiality and courtesy, in spite of being utter strangers who wanted to learn the bee business. We were shown the mysteries and the delicate details of queen-rearing. It was a truly wonderful sight for a raw beginner to see the almost invisible eggs picked up out of the cells where they had been laid, and transferred to their new quarters. And queens were placed with their traveling companions in well-fitted private cars to go on long journeys all over the country. The funniest thing we saw there was the darkey who was hoeing the garden near the beeyard. It was a hot day; but he wore not only hat and veil, but also sweater and slicker and gloves, and he kept up a perpetual sort of grinning grumble about "dem bees."

Another time we dropped in, unknown and unannounced, on Mr. Will Morris, of this city, who took us into his thriving back-yard apiary of thirty or more colonies, where he was working when we arrived. Mr. Morris has gleaned a lot of valuable and practical experience out in California, and talked freely of various operations. He certainly had strong colonies—double brood-chambers, and then full-sized supers tiered to an almost dizzy height.

This was all so delightful last spring that three weeks ago we tried it again. A drive almost too beautiful to describe took us out on the river road, past blossoming dogwood, white locust, and riotously fragrant honeysuckle, right into the heart of the hills. There we found Mr. Lucian Watkins with his 104 colonies. The hives were painted different colors, and, standing among young apple-trees on the side of a hill, made the prettiest apiary we had seen yet. Mr. Watkins runs for comb honey exclusively, and every colony was a hummer. The swarming season was on, and the swarm-catcher was standing near.

"No, I don't clip my queens," he said, answering a question. "Yes, they keep me pretty busy at this time of year," he replied to the next. "I returned several swarms to-day."

"Returned?" we echoed. "To the same hive? And will they stay?"

"Generally," he answered. "Occasionally I get one that won't stay put. After trying it once or twice I have to give them a new hive, though I don't really want any more."

So now two of our own hives are standing on Mr. Watkins' hillside; and when a big hard-headed swarm declines to stay where it is put it will go into one of our hives, and eventually it will come to live under our cherry-tree. But when it does, it will be leaving a Mr. and Mrs. Beekeeper whose friendly welcome and courteous hospitality have taken their place in our memories as an integral part of a beautiful day along with

The song of the birds and the sun on the trees
And the glad brave hum of a million bees.

Nashville, Tenn.

[We have read with considerable interest the discussion in some of the other bee-journals as well as in GLEANINGS regarding the advisability of giving help to a beginner. Even in Australia the subject is a live one as evidenced by the amount of space given up to it in the April 15th number of *The Australasian Beekeeper*. So far we have had but little to say, since, as publishers of a bee journal, any argument that we might bring forth is so likely to be considered as biased. Nevertheless we cannot blame any beekeeper who might feel that he had made a mistake in helping or encouraging a beginner if that beginner in turn should be so shortsighted as to locate an apiary right in the same range, or should attempt to crowd out in any way whatsoever, the one first in the field. Yet, on the other hand, there are really very few beginners who are able to produce enough honey to supply their own demand—a demand created by their own enthusiasm. Encroaching on another's territory is bad; but that practice, unfortunately, is not confined to beginners. On the contrary, we sometimes think we hear more of such work among beekeepers long since past the beginner's stage, who have been in the business long enough, certainly, to know better.

We cannot imagine any one refusing to aid in any way possible so enthusiastic a beginner as our correspondent. Beginners there always are and always must be; but from the fact that there are fewer beekeepers in the country to-day than ten or fifteen years ago, although probably no fewer colonies of bees, it is evident that there are not as many beginners or those who come under the same general class with beginners as there were a few years ago. We cannot believe that professional beekeepers have any thing to fear from intelligent beginners. —ED.]

THE BEGINNER AS AN ASSET TO BEEKEEPING

Read Before the Spring Meeting of the Philadelphia Beekeepers' Association

BY C. M HARRIS

This subject was suggested by the March 1st number of GLEANINGS, which was devoted to city beekeeping. The first intention was to give a résumé of the articles contained in it; but further study and thought boiled the subject down to "The Beginner as an Asset to Beekeeping."

One of the greatest needs of our business is publicity. The great manufacturing industries get together in trade associations for the purpose of spreading interesting facts about their business—facts which will increase the consumption of their product. They spend great sums of money in this work, and all are agreed that it is profitable as a financial proposition. There does not seem to have been any plan adopted to do this work for the beekeepers. Our principal publicity is, as a rule, of the injurious sort, such as a revival of the comb-honey canard, or a severe case of stinging, where if the facts were known, neither the beekeeper nor the bees were to blame.

Right here is where I believe the beginner can render great service to every one who is interested in the production of honey or bees. Beginners are enthusiastic, and their enthusiasm is the kind that will not let them keep quiet about their new hobby. They must talk to their friends and neighbors—or, indeed, to any one, whether he wants to listen or not. What is the result? The public becomes interested in our business, it is given facts, not flowery stories, or, what is worse, utter falsehoods. People learn the value of honey as a food, and begin to realize that it is a necessity, not a luxury. The beginner, in the lean years of his childhood as a beekeeper, certainly cannot supply the demand which he has created. Either he will come to those who have honey to sell, and supply the demand himself, or he will recommend some one of his beekeeping acquaintances as being able to furnish the desired supply. In either case the beekeepers reap the result of the best kind of publicity, that which acquaints the public with the product and its method of production.

The second way in which the beginner is an asset is that the novice is always and eternally asking why. He wishes to know, and is not afraid to inquire. Some of the most searching questions are asked by the beginner. Indeed, not a few of them are unanswerable; and even the veteran must acknowledge "I don't know." But such an ordeal as this is of inestimable value to us. The only way to find out just how much we do not know is to be brought face to face with hard questions. This serves to bring out a frank discussion of the point at issue, and thus we get a variety of opinions. Even in regard to the subjects in which we are well informed, by telling others what we know, we fix the principles more firmly in our own minds, and in describing some single operation we are led to see weak points, and thus become able to strengthen them.

Therefore, let us extend a helping hand to beginners, for the beginner of to-day is very likely to be the beekeeper of tomorrow.

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BEEKEEPING ON PUGET SOUND

BY CLAUDE C. PIKE

In the fall of 1912 when I came to Kent, which lies in Green River Valley, half way between Seattle and Tacoma, the people here told me it was no bee country—too wet, bees died, etc. Well, I have always been a lover of bees, and honey tickles my palate; so in the spring of 1913 I purchased three colonies of bees. One colony was nice and strong in an up-to-date ten-frame hive. The other two were in cheap hives. and they were not very strong. In May I transferred the stronger one of these two into a new ten-frame hive. As the combs of the weakest were mixed up, and I didn't have time to drum it out, I gave the one just transferred a good smoking, and placed the weak colony on top of it to fight it out. This left me two strong colonies in ten-frame hives for the season, so I put double supers of sections on them and went on an outing.

In the fall, August and September, No. 1 was full of nice white-clover honey, about forty pounds of sections, all crowded in the brood-chamber. No. 2 hadn't done very much, so I gave the bees some brood and part of the honey in brood-chamber of No. 1, and fixed them up for the winter and rainy season. One trouble here is the bees don't go to sleep as they do in Nevada and the Eastern States. They keep crawling the greater part of the winter, and therefore it takes more honey to keep them.

Feb. 14, 1914, was a bright sunshiny day; so in the afternoon I decided to see how the bees pulled through the winter. I was very much surprised to find both colonies nice and strong, with two or three combs of capped brood. This was Feb. 14, and there was possibly enough honey to carry them through; so you see, beekeeping on the Sound isn't bad.

We have many sunshiny days all through the winter, especially in January and February. One peculiar characteristic of bees in western Washington is that they don't mind cloudy weather when it isn't too cold. Many times in the spring and summer when it is raining they will fly.

This is a natural white-clover country, so that is the main source of honey. We also have fruit-bloom, berry-blossoms, wild flowers, and other clovers.

We have been reading GLEANINGS and A. I. Root's writings for some time, as you will see by the following: While a missionary to the Indians, on the Frazer River, in British Columbia, Canada, my father, Robert G. Pike, came across one of A. I. Root's early bee books and papers in the year 1885. He afterward helped rob beetrees and hive swarms. While reading these early books of the "Father of Beekeeping" in America (A. I. Root) he said to himself that if he ever got settled down he must have some bees. He afterward moved to Wisconsin, where I was born in 1890. He there became an extensive beekeeper and reader of A. I. Root's writings, besides preaching the gospel of Christ.

About 1901 we moved to Carson City, Nevada, after a number of years of moving around. As this was an extensive alfalfa country we began to subscribe again for GLEANINGS, and decided to get some bees. We purchased 14 old gums, transferred and Italianized them, and it wasn't long before we had 50, then 75 colonies. This was new to the natives around there, we having queens come through the mail, and handling the bees without gloves. So it soon became the talk of the town.

My father was a busy man, preaching at several different small appointments, and moving and building a church. I was the oldest boy, and liked bees, and was kept from school a great deal. At examination time I had to study hard, sometimes in the vacation months, to pass in September. We rigged up a honey-house, bought a four-frame extractor and other necessary articles, and ran mostly for extracted honey. We made some great records, used to extract every two weeks in June, July, and August. We sold all or nearly all our honey in Carson City for 50 cents a quart, Mason jar and all. In bulk we received $5.00 for a five-gallon can. One reason of our success was that the Lord was with us, just as he has been with our old friend A. I. Root all these years. He always led a good Christian life with a personal Savior.

We have always enjoyed Mr. Root's writings. I remember when quite a small boy my father reading "' Merrybanks and his Neighbor " out loud to us. It was so good we read it again. Also, " What to Do and How to be Happy while Doing it."

Kent, Wash.

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FOUL-BROOD INSPECTION IN ARIZONA

BY W. I. LIVELY

I have noticed several references to the report of the Arizona bee inspector. It seems to me that some of these writers, probably without meaning to do so, rather reflect on the work of Mr. Ivy. I think the Arizona beekeepers, almost without exception, feel that we have one of the most efficient inspectors to be found anywhere, and I think a little explanation will clear up some of the wonder as to the vast amount of work performed by him.

To begin with, there is but one county in the State in which foul brood is to be found, and in only a very few apiaries there. Until very recently it was unknown here. The cases at present are in an isolated region. We have not a single case in the Salt River Valley, and we will not permit it to come in, as some have found by experience.

Now, in the regions where foul brood was found, our inspector went through each apiary and each hive; and wherever a trace was found (and if it is there, believe me Mr. Ivy will find it), the hive was branded and the owner given so many days in which to eradicate it; and the fact was emphasized that it *must* be eradicated. Thus it was in a short time brought under control, and at this writing is practically eliminated.

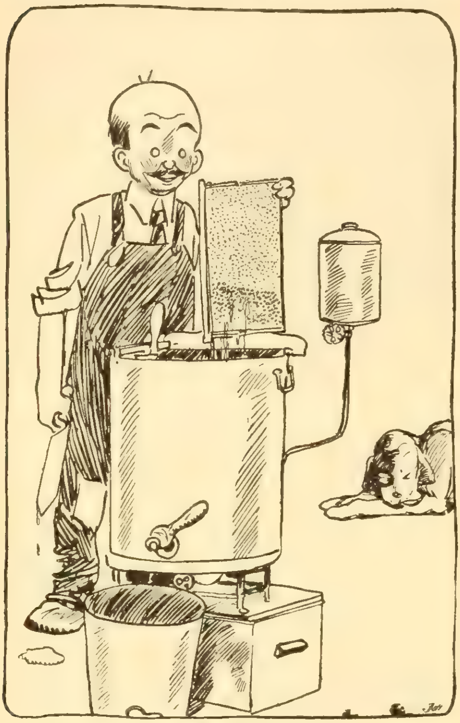
Outside of this one locality there is no disease, and never has been. This fact, as Mr. Foster says in his department, June 1, makes it unnecessary to go through every hive in an apiary. If an inspector came into my apiary, where both he and myself knew in all reason that there was no disease, and began systematically to examine every comb, running the risk of starting robbing, I should certainly hit him over the head with some little object like a hive-cover. On the other hand, if I even *suspected* its existence I would send post haste for the inspector; and once my suspicions were confirmed I would treat it by bonfire That is the approved Arizona method of dealing with it.

This explains why Mr. Ivy could cover more territory than he could have done in a State where the disease is quite generally disseminated. He is certainly wide awake, and on his job, and is an expert on foul brood, having been raised with it in another State. Not long ago I phoned him that I had a colony which showed symptoms of paralysis. He promptly ran up in his car, a round trip of nearly twenty miles, confirmed my suspicions, and advised me as to treatment.

But, to return to the number of colonies which can be examined in one day. Isn't " from thirty-five to fifty " putting the average pretty low, even where the most thorough inspection is necessary? I regularly extract from 20 to 25 hives per day, working alone. Some of the more progressive beekeepers of this State could go through 35 hives in a day, and strike up a personal acquaintance with a large per cent of the individual bees. Mr. Foster's estimate of 100 per day looks better to me. Send some of your inspectors to Arizona, and let them live on alfalfa and sunshine for awhile, and see them speed up.

Glendale, Ariz.

Heads of Grain from Different Fields



THE BACKLOT BUZZER.

When you find a little cluster of chilled bees clinging together on the running board, tote them into the house and warm them up, you notice one or two immediately begin to feed their hungry companions, and you think that's almost human; but when you remember the time you and Beany ran off and went fishing, and you fell in the creek, and got so hungry, and you wanted a piece of Beany's lunch, and he refused you, well, that *is human.*

The Choice of Section; Overstocking a Location with Bees

Dr. C. C. Miller:—I am a beginner in the bee business, and I expect to produce comb honey. I had 15 colonies last spring, and produced about 1000 lbs. of comb and 1500 lbs. of extracted honey. I divided, making 42 colonies. I now have 41 colonies. I plan to increase these to 100. I will raise my own queens. I think I can get 10,000 sections of comb honey. It is of a fine quality. I won five prizes at the fair last year.

What kind of sections would you use? I used 4¼ x 4¼ four-beeway sections last year. I reasoned that bees would work better in a four-beeway section than in a two beeway.

If I do not use the four-beeway I will get the plain section with a slat over the top and use fence separators. I should think they would save a lot of work, as I should not have to scrape propolis from the sections. Have you tried different sections? and do you know in which bees work best?

Is it true, as Alexander says, that it is almost impossible to overstock a locality? We have about 1000 acres of fireweed for our main honey-flow. It blooms from July 1 to about Aug. 20. We have plenty of bloom for brood-rearing after April 10, but we have so much rain that the bees cannot support themselves all the time. I had to feed in June last year when the white clover was in bloom.

I should like to keep about 400 colonies if my locality will bear that many.

Elbe, Wash., Feb. 28. LILLIAN L. HILL.

[Dr. Miller replies:]

For my own use I prefer the sections most popularly in use, the two-beeway 4¼ x 4¼ x 1⅞.

One might reason that four-beeways would be a good deal better than two; but when the matter is referred to the bees they don't endorse the reasoning. Before settling down on the 4 it would be well to give a trial to the 2. Try both kinds side by side.

Yes, I have tried a lot of different kinds of sections—tried some of them on a large scale, thinking them an improvement—but after trial I have always come back to the old standby as being best on the whole for the bees, easy as any to clean, and securing as large a crop as any.

I do not believe that Mr. Alexander meant it to be literally understood that it is "almost impossible to overstock a locality." There is not now, there never was, there never will be a locality, that may not be overstocked. It's only a question of how many colonies it will take to overstock it. And that's a very difficult matter to determine. A given number that did finely last season may overstock the same locality another season. With no more than 100 colonies, my locality has been overstocked more than once; but I don't know how many colonies it would support in the best years. I'd give a good deal to know. Not one in a thousand has a location like the Alexander yard. If I am correct, he had some 50,000 acres of buckwheat in range, and had 700 colonies or more in one spot. I never heard of any other location like it. In by far the greater number of cases, I suspect that 100 colonies will not do quite so well as a smaller number in one locality, take it one year with another.

With 1000 acres of fireweed, if you can count on a seven-weeks' flow every year I wouldn't dare say you may not profitably reach 400 colonies. Work toward it a bit carefully, and don't be too much disappointed if you find 200 better. In any case, take my best wishes with you.

Squash Honey

Strong colonies here in May gave a superful of section honey from apple bloom and horsechestnut. There has been nothing doing since June came in—cold nights and severe drouth. The bees have given up, as they have expelled their drones. August is our great month here.

Mr. Coburn, page 433, June 1, mentions the yield from *white* alder. If you can believe your botany, all alders bloom in the spring, and alder honey could be classed with hens' teeth. Mr. Coburn doubtless refers to button-bush; but there is not enough for any such amount. He lives two miles north of me, and our fall honey all comes from squash blossom, which begins Aug. 1, and lasts until frost kills it.

Until we moved here we had aways kept the apple for our own table, and we eat from 50 to 75 lbs. a year, and I have had bees for more than 50 years. We have had all the Western honeys, but nothing (for us) touches the squash. It is of a beautiful light color, just a tinge of yellow, and a flavor that appeals to every one. The squash has a highly colored flower with also lots of nectar—often three to five bees in a blossom. If you know any thing about squashes you know the blossom is open only one day; and if the little squash is not fertilized that day it is "good-by, squash." We reach not one acre or ten, but hundreds. More squashes are raised here than any other place in New England, and there are parties who depend on them for a living.

Woburn, Mass., June 24. E. C. NEWELL.

California Beekeepers at Panama Pacific Exhibition

The Exhibit Committee of the California State Beekeepers' Association, Mr. Willis Lynch, of Salida, chairman, held a preliminary meeting July 18, at Sacramento.

Dr. Cook, State Horticulturist, spoke at the morning session on the desirability of an exhibit being made by the beekeepers of California, at the Panama Pacific Exposition in 1915. He claims that, as California is to be the hostess to the world, she should naturally have the best exhibit in all departments. He called on beekeepers to encourage and assist their chairmen to the extent that the 1915 exhibit would excel every thing yet produced in the beekeeping line.

The afternoon session was largely taken up in discussing ways and means by which this work could be assembled and put in operation. The temporary organization was made permanent by the unanimous election of Willis Lynch, chairman, and A. L. Heim, of Fair Oaks, Secretary, the chairman to appoint a Treasurer later.

There was not a dissenting voice when our chairman put the pertinent question, "Shall we go ahead and have an exhibit?" Of course we all realize that there is plenty of work ahead for all; but what grand undertaking was ever brought to a successful issue without work and funds to back up the work?

A publicity committee was appointed by the chairman, whereby we are to let the world know that the California beekeepers are to have a fine educational exhibit at the fair in 1915.

Our chairman requested time for consideration before appointing the various other committees, the personnel of which will appear in these columns when available. MRS. H. G. ACKLIN.
Member Pub. Com.

Were there a Million Bees?

Referring to the September 1, 1913, issue, page 620, I would like to say that perhaps J. H. Diebel does not know that a million bees are equal to 200 lbs. weight, which could just about have enough room in a capacity of 6 ft. high and a diameter of 14 inches to get in without any combs at all, much less a barrel of honey. A million bees, or 200 lbs., is "tall," to say the least of it.

R. H. TOWNDS.

Barberton, South Africa, Oct. 25.

[Our correspondent in our issue for Sept. 1, 1913, was, of course, using the language of hyperbole. We sometimes say that "the horse runs like lightning," but, of course, we do not mean what we say. Mr. Townds is probably correct, when we get down to actual figures; but the average layman, when he sees a big swarm of bees in the air, will declare there are a million bees flying, when the fact is there are probably not over fifty thousand at the most. The largest swarm of bees that we ever weighed registered 9½ lbs. on the scales, and it was a big one. As there are about 4200 bees in a pound, the number would be a little short of forty thousand. A colony of bees, however, *may*, if it belongs to the skyscraper class, contain 100,000 bees.—ED.]

Two Wires on One Side of the Foundation and Two on the Other

One would think that, after the very full and careful write-up by Mr. H. H. Root, of the manner of putting foundation into frames, and another very good article that followed him, there should not be any more "say" on the matter left. However, here is a suggestion according to which I put foundation into Langstroth frames. I bend the sheet in past the bottom wire in such a manner that the two middle wires are on one side of it, and the top and bottom on the other. The trick is a little awkward at first, but quite worth while. The wire, even though pressed on but lightly with the wheel, never leaves the foundation, even if the frame be laid down on either side. I put in strips of foundation for vertical starters in the same manner.

It does not follow that bees will build worker comb only when such starters are used—no, indeed. But they do not join the combs and make a general mess as when only the conventional inch starters are used. However, where a good queen is at the head of affairs, combs thus startered are usually built out just as straight and regular as full sheets of foundation. Whether starters or full sheets, I prefer to fasten with melted beeswax; but if I use wedges, then I cut those wedges into three equal parts, and use only the two of those parts to fasten the full sheets of foundation toward the ends of frames. The operation is much easier, and the wedges never spring out. STEPHEN ANTHONY.

Waitete, Amodeo Bay, Auckland, N. Z.

More about Medicinal Treatment for Cases of Paralysis

In the November 1st issue, page 765, I notice what is said about bee paralysis. I am only a small beekeeper, but my bees died by the hundred of the very same malady in 1912. I have only five colonies, and saved them all—at any rate the disease has disappeared. A friend who lives three blocks from me had thirteen colonies, and lost all but four the same year. This year (1913) our bees are strong with plenty of stores, although we got very little surplus.

My bees were dying, and I did not know what to do for them. I saw that they were diseased, so I thought I would give them some physic. Accordingly I bought a bottle of California Syrup of Figs. I then boiled sugar, honey, and water, the same as you would for feeding—one quart all together. To this I added two tablespoonfuls of syrup of figs, and when it had cooled I poured this into the empty cells in the brood-frames. Two days after this there were no more dead bees.

If one lives in the city, as I do, he should tell his neighbors not to hang their washings out for a few days, as they will surely be daubed with yellow spots. My wife had the pleasure of washing all her clothes over again.

San Francisco, Cal., Nov. 11. FRED KLINGER.

Supporting the Alexander Feeder with Large Staples

Mention has been made of the difficulty of adjusting the Alexander feeders. I labored under the same difficulty until I bethought me of those staples with which the bottom-board is fastened to the hive. Nothing is more simple. After moving the hive back on the bottom-board the width of the feeder, I use two staples at each end of the feeder; fasten it to the hive, twisting one of the staples at the projecting end of the feeder half around.

Greenville, N. Y. C. H. CHATTERTON.

[The scheme of using staples is all right; but care should be taken that the points of the staple do not split the wood, causing the feeder to leak. For this purpose a staple with a smaller wire and shorter prongs will be more suitable. A hive staple must be extra heavy and strong.—ED.]

Bees Work on Grapes

It was with interest that I read the article in GLEANINGS for Feb. 1 regarding bees and grapes, for I am able to say a good word for the bees. I have a few good grapevines, and when they are blooming the bees work on them for several days, and in good numbers too. Some of the vines are not more than ten yards from the hives; but the bees never touch the fruit. Last season, when I had to feed my bees to keep them alive, the grapes were not touched, but when some of the grapes burst, through being overripe, I could not find more than half a dozen bees sucking them. I have often met people who believe that bees puncture grapes; but it has not been hard to convince them that the bees can not do so. DOUGLAS D. BREARLEY.

Subiaco, W. Australia, March 21.

The Net-weight Law

Having read your articles on the weight the new law requires us to mark on comb honey, I would say we are producers of comb honey only, and generally sell in Washington, D. C. We beg to ask you if this law requires us to stamp all of our sections individually, or can we mark them as we always did, gross weight, case weight, long weight, etc., and tell us if we still have to stamp them.

CHAS. AND WARNER MILLER.

Washington, Va., July 25.

[It is our understanding that every section must be marked. The law does not specify that the net weight shall show on the shipping-case. But all dealers and buyers will require it, so that you will have to do both. To get at the net weight of the honey in a shipping-case, weigh up all the sections and then deduct as many ounces as there are sections in the shipping-case. It will no more be permissible to weigh in the wood with the section in getting at the net weight in the case.—ED.]

Net-weight Law Does Not Apply to Honey Sold Locally

I see that the net-weight law applies to interstate commerce. Does this mean honey shipped from one State to another, or does it apply to honey produced and sold within the State? I wish to know whether it is necessary to brand honey that one sells in his home market that does not go out of his own State.

Mt. Carmel, Ill. ROBERT WATT.

[The net-weight law does not apply to honey that is sold within the State; but some one else to whom you sell may ship it into another State, in which case you, the original producer, would be liable. If you can make sure that your honey is not going outside of your State, and will be consumed locally, you can sell it as you did before, providing there is no State law to the contrary.—ED.]

A Good Plan for Stopping Robbing and Disposing of Robbers

I have a plan to stop robbing which I should like you to try if you have not already. When you find the bees robbing, close the entrance, leaving just room enough to insert a Porter bee-escape to let them in, but so they cannot get out, and leave it 48 hours, then open the entrance, and the robbers and the robbed will work in harmony together. It may not work with you, but it does with me. I had a colony of black bees that was well started robbing out a mating-hive of Italians. I tried this plan and the robbers did not return to the old hive. I have also tried it on larger colonies with the same success. You would have to provide shade and ventilation in hot weather.

Winchester, N. H., July 20. A. J. PLUMMER.

[We believe the plan here outlined is all right. We have tested out something very similar, and find that it is quite possible to trap the robbers and confine them, and then make them adopt their new home. The scheme catches all the robbers, and thus entirely stops the pilfering at other hives. Closing the entrance to a robbed hive does not by any means stop the nuisance; for the robbers will then pounce on every other hive in the vicinity; and the trouble, instead of being mitigated, is only made worse. The Plummer plan puts all the robbers out of business. and we feel sure it is worth trying.

The plan that we tested out was similar in principle. We placed a wire-cloth cage of suitable dimensions over a hive that was being robbed. In a short time there were hundreds and hundreds of robbers buzzing around the cage. We lifted this up momentarily, letting in all the robbers. They rushed into the hive, and then we set it down again. In the mean time the confined robbers hovered near the top of the cage. This operation was repeated at intervals of about ten minutes for two or three times. In the course of half an hour we had all the robbers in the top of the cage. Toward night they were clustered in one corner. We left them there until the next night, just about dusk. Then we bumped the whole bunch of bees in front of the entrance where they had been robbing. They went right in, and the hive that formerly did not have force enough to protect itself was now a good colony ready to resist any kind of onslaught. We tried this on several colonies, or, rather, nuclei, that had been robbed. In each case they were made over into colonies.

As the principles involved in this case are exactly the same as those used by our correspondent, we believe it will work, and, what is more, is simpler and cheaper; but in every case in hot weather we would advise at the time of putting the bee-escape on the entrance to place a wire screen on top of the hive to prevent suffocation. A big force of robbers confined in a hive, with no other ventilation than that through a bee-escape of the Porter type, if the weather is sufficiently warm, especially if the bees are out in the sun, would be quite likely to smother. —ED.]

No Mosquito-Hawks

There are no mosquito-hawks in this locality to bother the bees. As I have kept bees in North Carolina and South Carolina for 12 years I certainly know what they are. This is no honey country, but there has been enough honey for fair queen-rearing since the last of January.

McIntosh, Fla., June 24. JAMES AMMONS.

HOW LONG?

BY GRACE ALLEN

I wonder how long the bees have been humming;
I wonder what lies at the heart of their song.
Is it worship, I wonder, as, going and coming,
They've glimpses of glory that's splendid and strong?

In the far-away, long-ago days half forgotten,
When men were as children (what are they to-day?)
When things were what thundering prophets called "rotten,"
And men turned from God and went cursing away,

The bees in the vineyards were coming and going,
Were flying from fig-tree to thistle and thyme,
Contentedly humming, while warm winds were blowing
Their eager refrain into rhythm and rhyme.

I wonder how long the bees have been humming;
I wonder what lies at the heart of their song.
I wonder if men, in their going and coming,
Will ever be singing so steady and strong.

A. I. Root OUR HOMES Editor

Love your enemies, bless them that curse you, do good to them that hate you, and pray for them which despitefully use you and persecute you.—MATT. 5:44.

AN ADDRESS DELIVERED BEFORE THE OHIO STATE BEEKEEPERS' ASSOCIATION ON FIELD DAY, JULY 9, 1914.

Continued from previous issue.

About five miles out in the country from Medina was an old gentleman who had kept bees nearly all his life in box hives; and I think that at the time of my experiments he had forty or fifty colonies, perhaps more. I knew him by reputation, but not personally. He was generally regarded as authority on bee culture; but as he had only box hives I had never paid him a visit. After my statement came out in the Medina *Gazette,* of getting a barrel of honey from a single colony, somebody told me that Mr. Chase said this was an utter impossibility. Not long after, I saw him passing along the street. I went out and accosted him as follows:

"Mr. Chase, is it really true that you have been saying hard things about me and my new Italian bees?"

"Yes, Mr. Root, I have said some rather severe things, and my conscience has been troubling me a little. What you have said seems to me like an utter impossibility."

I did not stop to argue the matter. I simply said:

"Have you a little time to spare this morning?"

When he replied that he ought to get back home I insisted that he accompany me to the apiary. At the time, I had a hive of my best Italians suspended by a spring scale with a large plain dial that recorded ounces. I brought out an easy-chair, placed it before the hive, and said:

"Mr. Chase, instead of answering you myself I prefer to let the bees answer. Sit down and watch that scale. I can bring you a newspaper if you wish. But every now and then I want you to watch that hand on the dial."

Then I left him. In a little while I came back.

"Why, Mr. Root, do you really mean to say that those bees have brought in several ounces of honey while I have been sitting here?"

It was just the time of day when honey and pollen were coming in with a rush, and I made my point. He took off his hat and made a full apology, remarking that he was old enough to have learned by experience that it is best to *inform* ourselves before rejecting new things. A little later he came down while we were extracting from a certain hive. I told him how many pounds we had secured with my new home-made all-metal honey-extractor—the first the vorld had ever seen. Our German friends have the credit of inventing the extractor; but theirs but a clumsy machine made of wood. I said right off it should be all metal. Well, Mr. Chase did not say very much, but he came into my store a week or ten days later and said:

"Mr. Root, will you have the kindness to do me a favor?"

Of course I responded with alacrity. He then said:

"I want to see that hive once more that you robbed of almost every drop of its honey."

I told him it was about ready to extract again, and that I should be very glad to have him see it. When he saw the same combs of a two-story hive filled and sealed over with a larger yield of honey than we took out the first time, his astonishment was complete. Said he:

"Mr. Root, when I saw you take all that honey out of the brood-nest as well as out of the upper story, I told my friends the colony would surely starve before winter."

During that first season the colony on spring scales during three days gathered 42 lbs. of honey. I have often wondered why more beekeepers do not have a colony suspended in that way.

At that time, I made a statement that the time would come when honey would not only be on sale in every corner grocery in our land, but that, like butter and eggs, it would be on sale *every day in the year.* Just a few days ago one of my sons-in-law said to me:

"Father, we have just got an order for 50 gross of these new individual bottles of honey from a hotel in the city of New York. They are using about one gross a day."

I expressed great surprise, and repeated it around among my friends. A day or two afterward he said:

"Father, you thought it was a big thing when we got one order for 50 gross of the little jars of honey. Well, to-day we have still another order, for *four hundred gross.*"

It is a little singular that Langstroth and Quinby, each without the knowledge of the other, got out a book on bees in 1853. Langstroth described his new invention of a movable-comb hive. Quinby's book was written in reference to box hives. But Quinby was a practical business man, and made money with his bees *without* movable combs. Langstroth was a minister, and, like many other ministers, he was not much of a business man. Besides, a number of people right and left appropriated his patent without paying him a penny for it, and he, being a minister, could not very well defend himself. As a result, he was a comparatively poor man all his life, and more or less dependent on his relatives and friends. Our attorney once remarked that *preachers*, especially successful ones, are, as a rule, poor business men. I remonstrated, and told him that one of our former pastors, calling him by name, was certainly a *good* business man. Our attorney, with a sly twinkle in his eye, replied:

" Mr. Root, if you mean that preacher's *wife*, instead of him, I entirely agree with you."

May God bless the ministers *and* their wives. What would their husbands have amounted to, many of them, had it not been for their wives and *their* businesslike methods? Langstroth, during his busy life, laid up treasures in heaven rather than here on earth. Our friend Quinby was a good man, and made every thing prosper, and their two books go well together. I read Quinby's book clear through carefully some time after I had the Langstroth movable-comb hive; and I confess I got a great deal of enthusiasm from it—yes, to such an extent that I thought for a time I should really like to have a box-hive apiary. It seems that neither one of these good men knew what the other was doing; but, notwithstanding this, they agreed substantially in all matters of natural history. After Quinby's attention had been called to Langstroth's book he got out another edition of his own book, and in the back part of it he made brief mention of Langstroth. Below is a short extract from Quinby's appendix:

> A friend of mine, on ascertaining that I did not allow prejudice to operate against my own interest knowingly, even in a bee-hive—that I would not reject an advantage because it was found in a patent, but was willing to profit by whatever could be made profitable—sent me a copy of the Rev. L. L. Langstroth's work on the " Hive and Honey-Bee," early in 1856. I had heard of the work previously, but had understood that it recommended a patent hive, and, not having reason to esteem them very highly, I took no pains to procure the work. I found, on perusal, that he agreed with me on so many disputed points in natural history and practical lessons, that had it not appeared simultaneously with the " Mysteries," thus making it impossible for him to have taken any part from it, I should perhaps have judged him wrongfully, and very likely he would have done the same by me. It was evident, therefore, that both of us had arrived at correct conclusions by the same process—close observation. This gave me a favorable impression. I found also that his hive, for a wonder (being a patent), did not necessarily interfere with the natural habits of the bees.

Langstroth soon called my attention to the fact that an American bee journal had been published for three years by Samuel Wagner, of Washington, D. C., another of God's noblemen. After some correspondence with friend Wagner I induced him to recommence the publication of the old *American Bee Journal,* promising to write for it. Some of the gray-headed veterans will remember the articles that appeared, headed " A Novice's Experiences in Bee Culture." While Samuel Wagner lived I had no thought of a journal of my own; but at his death the *American Bee Journal* was sold to a party who was not a beekeeper, and moved to Chicago. Meanwhile the news of my all-metal honey-extractor, the success I had made with the Italians, etc., called forth such a correspondence that I started a little quarterly in 1873, which was received with so much favor that almost immediately it was changed to a semimonthly at 75 cents a year. By this time I had become pretty well acquainted with Mr. Langstroth, and was told he was subject to spells of mental depression. I finally corresponded with him, and by my enthusiasm I waked him up, so to speak, so that I got him to make me a visit. Before I speak of that visit, however, I am going to branch off for a little time and take up something that is not exactly bee culture.

When I began watch repairing in Medina there were two jewelers already in the town, and people naturally thought it was preposterous to start a third store, especially by a young boy who had had but little experience. One summer day a stranger came in from the West with a covered wagon, leading a pretty little pony which he wanted to sell (as he was out of funds) to enable him to get to his destination. In those days " horse-jockeys " were a common thing, and some of those fellows loafing around the street planned to cheat this poor man out of his pony. They offered him a good price, but wanted to turn in a gold watch. He brought it to me and asked if it was really a *gold* watch. I told him it was low-carat gold, something that jewelers knew at that time as "Philadelphia gold." Then he asked if it was worth fifty dollars. I told him that *fifteen* dollars would be nearer its actual value. Then he asked me to test it with acid. I demurred, telling him it would leave a spot on the watch; but he so stoutly insisted that I just touched the case with acid. I tried to polish it off so the spot would not show. The trade was broken up, and then for the first time in my life I learned that it might be sometimes a little dangerous to "butt in" and break up a horse-trade. In a little time the man who owned the watch marched into the store with a crowd of toughs, as it seemed, and gave me a blowing-up. He accused me of putting aquafortis on the watch. He said I was only a back-woods farmer, never learned any trade, and that my whole place was only a one-horse institution. I remonstrated with him, and told him the plain truth about the watch, but it only made him the uglier and more abusive. If any of you are just commencing in business, and ever get a blowing-up like that, when in the right, and innocent, you can tell how I felt. I was so indignant I trembled all over, and my voice shook so I could hardly talk. After the crowd had gone and left me alone a lady came in; and I can remember vividly how I calmed myself down and tried to talk naturally to my customer. She had a little piece of jewelry that then was called a microscopic photograph that she valued very highly. She said she had had it repaired several times, but they always got the "motto" twisted or slanting. She cautioned me to be sure to have the motto stand horizontally as I held it up toward the sky. She then went out, saying she would call again soon. Let me digress a little once more.

My good mother, because of my narrow escape from death, watched over me with perhaps greater solicitude than she had shown for any of the other six children. She saw me grow in strength, and was pleased to note my love for science and God's works; but she was not pleased when, for a brief time, I drifted toward skepticism. When I had success with Italian bees she visited our home often; but again and again she would say to me, "Amos, I am glad to see you prosper. I rejoice to know what you are doing for the world in developing beekeeping; but the time is coming when you will be glad to be doing something of more importance to the world than to work with bees and honey. I know—I am sure of it, for I had evidence when I prayed for you, and, in answer to my prayers, God spared your life." She said this so many times during the early part of my manhood that I often laughed at her, and bantered her about her "queer notions." Let us now get back to that motto and the jewelry store.

Without any thought of what was coming I held that little piece of jewelry up to my eye and gazed toward the sky through the big plate-glass window. What do you think it was that she called a "motto"? This is what I read as if it were painted across the sky.

> But I say unto you, Love ye your enemies; do good to them that hate you; bless them that curse you, and pray for them that despitefully use you.

I saw the application at once. These words just then were like a drink of cold water to a person stranded in the desert. I recalled hearing the same words before when I attended Sunday-school; but it had been so many years since I attended, or at least at rare intervals, that I had forgotten all about it. When I was a child, I did not see the *beauty* and *grandeur* of those precious words; but now that I was a man and vexed in spirit, I took in their full import. When I saw my mother again I asked her if she could find where those words occur in the Bible.

"Oh, yes!" she said; and I soon began to read them over; and I read that whole wonderful sermon on the mount. May God forgive me for living on till I was toward 35 years old before I had hardly a *thought* of laying up "treasures in heaven where moth and rust do not corrupt and where thieves do not break through nor steal," as well as here on earth. Just about that time a queer individual was traveling through this county painting scripture texts on the fences. Some people said he was daft; others said he was doing *missionary* work; and I remember distinctly a text in very plain characters painted on a board fence just a little out of town: "Blessed are ye when men shall revile you and persecute you, and say all maner of evil against you falsely for my sake." I said, "Mother, those words came from heaven. They are not of earth;" and some time after testing these precious promises I said again, "Mother, loving your enemies and doing good to those who hate you is an *unexplored region*. It is something humanity has not discovered. It will revolutionize the world. It will settle quarrels, not only between neighbors, but communities and states, and among the nations of the world;" and, my dear friends, it has been my delight for the last forty years or so to *test* these grand and divine precepts that came straight from the mouth of the Lord Jesus.

Right in line with the above comes something that I have clipped from the *Sunday-school Times*. It is gospel truth in common everyday language. Again and again I have wanted to quote it to you; and just now I can not think of any thing that will do the world so much good in this twentieth century as the scattering broadcast of the wonderful truths outlined in this brief paragraph. I am thinking of having it printed in large type so that even old people can read it without spectacles; and I am so well convinced of the wonderful truth in the above that I will furnish it without price or postage so that all the dear friends of the GLEANINGS family will take and distribute it. By the way, if there is any other religious periodical that gives the world such thoughts as these I have not yet found it. May God bless and prosper the editors of the *Sunday-school Times*.

THE DEFEAT OF INJUSTICE.

> No one can ever afford to think about any injustice he receives. It is disaster and destruction to do so. It is like deliberately lifting a glass of poison to our lips and swallowing it. Injustice inflicted upon us never harms us until we dwell on it. While we ignore it, and do right, it is powerless against us. When we begin to turn it over in our mind, it starts its murderous work upon us. It soon exaggerates itself, blinds us, rankles, inflames, embitters. It breeds self-pity, which soon reduces us to a condition of worse than helpless uselessness. Jesus paid no attention to the awful injustices of his lot. We can not afford to do other than he did, but with our lesser injustices. If love is our master-passion, "thinking no evil" and "bearing all things," we shall live *emancipated* from the misery of dressing our own wounds. Such wounds heal quickly when we are lovingly busied with the needs of others.

Let us now get back to bees and bee culture.

Mr. Langstroth came up and paid us a visit. He told us a long story about his patent. This poor man had dwelt on it so long that even he, a minister of the gospel, and a successful one, had lost his peace of mind; and if he had not lost his faith in God it shook his faith in humanity. I called his attention to the hopeful text on that beautiful microscopic photo; but even he, minister of the gospel, did not catch on. I urged until he seemed annoyed, and I was afraid of a return of his malady. With a sad heart I gave it up. As it was getting to be late and toward bed time I went with him to his room. He said very little, although he was naturally exceedingly talkative, and I felt I had offended him by my importunity. In the morning, when breakfast was ready, as he had not put in an appearance Mrs. Root thought I had better go to his room. It was warm weather, and the door was wide open. The old gentleman was awake and partly sitting up, leaning on his elbow. As soon as he saw me he beckoned me to come up near him, with his finger. I was really afraid he was going into one of his "spells." He took his watch out from under his pillow and asked me to listen. As I was a watch repairer I supposed there was something wrong with the beat; but when I told him that it seemed to be in perfect order, and that it beat clearly and regularly, what do you think he said? He asked me what the watch said to me. I replied that it did not "say" any thing, and now felt sure that he was losing his mind. His reply made me think of one of my favorite texts: "O thou of little faith! wherefore didst thou doubt?" This is what he said:

"Mr. Root, that watch has been saying 'Quinby! Quinby! Quinby!' all night long and I can't stand it any longer. I am going to start to-day. I am going to see Mr. Quinby. I am not going to say a word about the patent or about the hive. I am going to him as though we had always been friends."

You may be sure I thanked God for having rebuked my want of faith. "Let us not be weary in well doing; for in due time we shall reap if we faint not."

Friend Langstroth went to see Mr. Quinby, as he declared he would do, and they had "the best time in the world," and Mr. Langstroth got over his mental malady, if I am correct, and had little or none of it from that time until his death.

He and Mr. Quinby were warm friends until the day of their respective deaths—Quinby in 1875 and Langstroth in 1895. Both were born the same year—1810. After this the subject of the Langstroth patent was never mentioned. Our old friend seemed to have gotten hold of still another text from God's holy word: "Do good and lend, hoping for nothing again."

Later.—To-day is July 30; and as I write, war has broken out in the Old World, and reports seem to indicate that nothing can be done to stop it. Even the Peace Commission of the powers of the earth seem unable to stem the torrent of evil. The poor deluded people, from the humblest laborer to the king on his throne, seem totally oblivious of the grand text I have been talking about and quoting. The statement I made to my mother toward forty years ago, that rendering good for evil was as yet an "unexplored region," seems to be true even now. In spite of what missionaries have done, in spite of the thousands of copies of the Bible translated into all languages, and scattered among all the nations of the earth, the world has not yet learned to—"love your enemies and do good to those that hate you."

THOU HAST BEEN FAITHFUL OVER A FEW THINGS, I WILL MAKE THEE RULER OVER MANY THINGS.

I have several times spoken about the enjoyment I get with my little Stanhope electric automobile. Well, heretofore it has required charging about once in ten or fifteen miles. By getting it in fine shape as well as we could here at our own place of business I managed to get it up to 25 miles on one charge of the battery. But as I wanted it in such trim as to make 30 miles, the distance from here to Cleveland, I had an expert from the makers of the vehicle to overhaul it thoroughly, getting rid of all the friction possible. It was quite a treat to me to be with the expert while he took the machine to pieces, critically examined every part, and gave me new ideas, not only in regard to storage batteries, electricity, "ball-bearing," etc., but he gave valuable instructions about repairing, to my good friends who have charge of our automobile-repair shop. Well, on Saturday morning, about ten o'clock, he discovered he wanted some special parts; and as he expected to finish up his job by night it was quite important that they reach here that same afternoon. I expressed some doubt about his getting them so the machine could be put together so I could use it to go to church. He said *he* could telephone them so they would be sure to get it right off. Now, the point of my story is what I found written on the shipping-tag when it came in at three in the afternoon on the electric-package car.

Rush! Special rush—man waiting! Notify consignee by phone immediately on arrival. BAKER MOTOR VEHICLE CO., Cleveland.

By the way, friends, is there any one among you who has not been annoyed by the half-heartedness or stupidity of express agents and others connected with transportation? Again and again I have been told things had not come that I wanted badly. Sometimes by importunity I have made the express man wake up and take a good look. Then, again, I have phoned and wired big establishments for something I wanted badly, and would not get a reply for several days. I have had so many such disappointments that I do not know but I was beginning to lose faith in humanity. But the Baker Electric Co. had always been so prompt in their correspondence, and so willing to make every thing plain, that I was *beginning* to have confidence again. The printed matter on that shipping-tag gave me more confidence. One of my grandsons took his wheel when the car came in, grabbed the package, and handed it to me without even stopping, and it was in the hands of the expert just as soon as he was really *ready* for it. The car was all fixed, he gathered up his tools, and left me the happy possessor of my car with all the *moving* parts practically "brand-new." It made 31 miles on one charge, and I expect to get several more miles out of it if I fully comply with his instructions. Now for the moral.

The people who do business in that way, take as much pains with an order for a 25-cent article that is badly needed as if they were going to make a sale of $25.00 or $2500. The young man or young woman who starts out in the world with the determination to be "faithful in a few things" will very soon be made by the people "ruler over many things." While I am on this subject I wish to tell you another little incident. First we will have a heading like this:

THE LOW COST OF LIVING.

Now do not think, friends, that I have made a mistake and got it wrong. So much has been said in regard to the *high* cost of living that I am exceedingly glad of the opportunity to say something on the other side; and the incident I am going to speak of did not occur out in the country nor in a rural village. It was almost in the heart of the great city of Cleveland. A great deal has been said about the expense of living, in *large cities*. Now, at the time of my story I happened to be in the city with one of my grandsons, a full-grown man, and another stout fellow who has charge of our auto-repair shop. I had finished my business, and was in a hurry to get home. I had but twenty minutes to catch our Medina car quite a piece away. Mrs. Root told me, when I started to go out, to be sure to take the boys to dinner as a return for taking me along in their auto. I said to Howard, "We cannot get dinner, and get over to where the car stops, in twenty minutes, so I shall have to wait for the next car."

Then we started for a restaurant. It was up an elevator on the second floor. Howard took the lead, gave me a big tin server, pointed to a knife, fork, and spoon, to which we helped ourselves. He then took the lead to a long table where hot smoking viands of every description were ready to be ladled out for the benefit of hungry people. It was one of those restaurants that I think they call "help yourself." I took a little roll of corn bread—I think it might be called the "hoe cake" that I have spoken about so often, and it was certainly tiptop. Then I had three slices of extra-nice bread cut from one of the loaves a yard long or less. A nice pleasant woman with a spoon in her hand presided over a dish that looked something like a meat pie. She gave me a spoonful, and I pointed to a nice little chunk of roast beef. Another pleasant-faced little woman gave me a generous spoonful of fried potatoes. A third one asked me if I would have some brown beef gravy on my potatoes. I nodded assent. You may wonder why I thus go into details over such commonplace matters. Well, I do so because I feel sure there are many among our readers who, like myself, have not kept pace with the great improvements in feeding the multitudes in a big city and in reducing the high cost of living.

As I had given up all hope of catching my car I ate my dinner quite leisurely, chewing my food as usual quite thoroughly. As it was very likely well cooked, and the meat in the pie was ground fine, it did not take very long. We are now coming to the point of this story.

As we passed along with the crowd, each one of us held his plate in full view of another pleasant-faced woman who had a lot of ivory tablets about as large as a silver quarter. On these tablets were figures. She just gave my server a quick glance, and tossed on it a tablet with the figures "14" on it. I supposed my nice dinner was going to cost 30 or 40 cents; but when I asked Howard what *14* meant on my check he said, "Why, grandpa, that is what your dinner cost."

"Why, do you mean, Howard, that this nice dinner that we have just had cost only 14 cents?"

He laughed, and nodded his head. I then noticed the checks given those two big stout men, and they were just *23* cents each. Now, what do you think of it, friends? Many of our country restaurants are saying they can not furnish meals any longer for 25 cts., and are charging 35 to 50 cents; but here in this big city we had a splendid dinner (I think the boys had some kind of dessert also) for the 23 cents, and my excellent and wholesome meal, without any "frizzles," of course, was *only 14* cents. We got it without *waiting a second*—no hurrying up slow half-hearted waiters. Well, the above is a pretty good story, even if I stop here. As I finished my dinner my good friend "Herb" (as that is what I used to call him when he was a small boy I like to speak of him that way even yet, even if he has pretty well-grown-up children of his own just now) said, looking at his watch, "Mr. Root, if you are anxious to get that car I think you can do it, yet."

Howard immediately added, "Yes, I think I can get you there, especially if they happen to be a little late." Then Howard started to "make time." One cannot go past a standing car in a large city; and you can not pass a policeman without his signal, so we were hindered a good deal. But we finally caught sight of the Medina car just starting out. Howard said he could make it; but lots of people got in the way, and I said we would have to give it up. Howard replied, "Not so." The car stopped for a passenger, and I was almost ready to get on when off it went again. Then another car "held us up." But Howard would *not* give up. Just as the last bit of hope was vanishing, the drawbridge over the river was turned, and the car was compelled to hold up, and this enabled us to catch up. The result was that I had *two more hours* to read periodicals, read letters from our many friends, or to hoe in the garden.

Now, my good friends, even if it is true that there are some things going wrong during this twentieth century, is it not also true that there is a whole lot of things that we ought to *thank God for* every day of our lives, especially if we are *bright* and on the *alert*, and *hopeful?*

HEALTH NOTES

ROBBING SICK PEOPLE.

I do not know but I shall be obliged to have more or less of this in every issue. Read the following from the *Good Health Magazine:*

> THE HIGH COST OF CONSUMPTIVE CURES.
>
> A statement just issued by the National Association for the study and prevention of tuberculosis shows how $15,000,000 a year is contributed to the high cost of living, this sum being spent by the American people for fake consumptive cures. "In spite of the statements of a number of individuals who have recently claimed that they have found a 'cure' for consumption, there is no information at hand to justify the belief that any specific cure for tuberculosis has been discovered which deserves the confidence of the medical profession and the people."
>
> In backing up these statements, the United States public-health service declares that "outside of the three essentials in the treatment of consumption—namely, rest, fresh air, and good food, there is no drug known, however rare or expensive it may be, that has any curative action in this disease, and all remedies advertised as such are to be avoided."

Fifteen million dollars a year! What do you think of it, friends? This vast sum of money is not only wasted, but I presume a good deal of it goes for Duffy's malt whisky, which does *harm* to the consumer, makes him an inebriate, very likely, and not only hastens him to the grave, but many times it hastens him to the grave of a *drunkard.* The trouble is the one we have pointed out so many times. Sick people, especially those sick with consumption, have a peculiar hopefulness; no matter what medicine they take, they say they "feel better." In fact, after using the senseless electropoise or oxydonor, they feel better, or imagine they do; and they keep on until these vile robbers of sick people get a lot of their dollars. I suppose I have made quite a few enemies in trying to teach people that they simply *imagine* they have been helped. It is the same thing with the chiropractic people The venders of these new inventions point you to their testimonials from the people they have helped. My reply is that the oxydonor people have just as many testimonials, or even more, and yet that little piece of metal representing a scientific instrument contains nothing but sulphur and graphite, or some other senseless ingredient.

Let me repeat an incident that was reported to me. Years ago the electropoise people had a $50.00 instrument. It looked something like a clock. On the dial was printed the name of ever so many diseases, including diphtheria, pneumonia, cancer, etc. When the patient who owned one of these clocks was sick he simply turned the hand on the dial of the clock to the particular disease he thought he had. A well-to-do man in Michigan, when building a fine residence had one of these electropoise clocks put in so as to have his home up to date. Somebody asked him what sort of complicated machinery was inside that enabled it to pick out any particular disease and send the remedy through the wire hitched to the patient's ankle. The owner said he was curious about it himself, and would like to investigate. The machine could not be unscrewed, so he got a chisel and pried it open. What sort of scientific apparatus do you suppose they found? Why, they found just a common nail driven into the back of the clock, and the wire that was hitched to the clasp that went around the ankle was simply twisted around that nail. Now, the inventors, or venders, perhaps I should say, had testimonials to the wonderful cures performed by that "clock."

To come right down to date I wish to mention "sanatogen." You see it advertised in many papers. Just recently I saw it in a prominent religious weekly, with the statement that it had the indorsement of *21,000* doctors. Ask your family physician what *he* thinks about sanatogen, and then consider the statement of so many doctors! Electropoise said years ago they had the indorsement of a *hundred ministers of the gospel.* If this were true, the greater shame to such ministers. Well, sanatogen may be a little better, owing to the fact that it really does help people; but *Collier's Weekly* tells us that it helps just about as much as the same amount of cottage cheese. The only trouble is that we have to buy $100 worth of sanatogen to get the same amount of energy that we do from a dollar's worth of wheat flour. The price of it is from one dollar up; and where people have more dollars than they have use for it *might* be a good investment.

Dr. H. W. Wiley, in *Good Housekeeping* for January, 1913, agrees substantially with the above. In fact, he says:

> One dollar's worth of sanatogen yields approximately not more energy than six cents' worth of good milk or one cent's worth of ordinary wheat flour. The following claims made for sanatogen are seen, therefore, to be highly exaggerated:
>
> The re-creator of lost health.
> Sanatogen is . . . . a rebuilding food.
> . . . . . . revitalizes the overworked nervous system.
> Specific nerve-tonic action.
> Most reliable and scientific of all nutrients.

By the way, since reading of the wonderful results from the use of sanatogen I thought I would test cottage cheese. I used it with my fruit for my supper instead of common cheese; and I am rejoiced to say that it fills the bill better than any other cheese I ever got hold of. Last night I had for my supper beautiful luscious peaches—six cents' worth—and a little bowl of cottage cheese with some buttermilk stirred in. I told Mrs. Root it was the most delicious meal I ever had in all my life. She would not allow this to go in print if she knew it, because she says I have said it so many times; but I tell her the *world* is progressing. Every day gives us something better than we ever had before.

I do not know exactly what price I ought to put on the cottage cheese and buttermilk, for we have two good cows; and while our young folks are off at our cottage on the lake, there is more milk than all the families can use; so if I do not have the cottage cheese and buttermilk it would go to the chickens.

Now, good people, those of you who have paid from 25 to 50 cents (or more) for your supper, just hunt up some nice peaches and get some cottage cheese somewhere, and you see if it does not make a meal fit for a king, and ten cents will pay the bill. Mrs. Root says if I am going to continue with the above meal I need not tell people any longer that I "do not eat any supper."

Now just one word more. Mrs. Root prepares my cup of cheese and buttermilk at any odd time during the day, and places it where I can find it readily. I get the peaches at the grocery. When I am through I drop the peachstones in the bowl that contained my cheese, carry them away, and then Mrs. Root simply has the one bowl and spoon to wash. Perhaps I had better add that *her* supper is about as simple as mine. I think, however, she has a little dry toast and butter, or something that does not require a lot of dishes, and nothing to clear up after supper.

Now, perhaps it *may be* a good idea to *read* the exaggerated statements in regard to the value of sanatogen, but instead of paying a dollar a bottle, which is a hundred times what it is really worth, use cottage cheese and buttermilk that can be found at a reasonable price (thank God) almost all over our land.

TEMPERANCE

DOES PROHIBITION PROHIBIT? SOME "FACTS" FROM OUR GOOD FRIEND T. GREINER.

How absurd, and how easily disproved by the facts, is this claim of the liquor men that prohibition does not prohibit! how, just at this time, by denials and misstatements and misrepresentations, they try to wiggle out of the hole that the unexampled and wonderful prosperity of the dry State of Kansas has put them in! And this prosperity cannot be denied. Our good friend F. D. Coburn vouches for this prosperity, and we may well take his word for it as against the whole of the liquor forces.

We have in New York one county that is wholly dry. This is Yates. It has one large village, Penn Yan, which has been dry for over four years. I was anxious to learn how things look there now, and asked Assemblyman Gillette some pointed questions. The following are the facts as reported to me:

During the year of *license*, 210 persons were arrested in Penn Yan, 118 of them for intoxication. During the four years of *no license* (Oct. 1, 1909, to same date 1913), the number of arrests was gradually reduced to 96, 91, 81, and 90, respectively, of which numbers 74, 55, 62, and 53, respectively, were for intoxication. In the slightly larger village of Canandaigua, a license town with a large brewery in Ontario County, probably not more than 20 miles distant, 710 persons, 411 of them for intoxication, were arrested during the year 1912. Some difference, apparently!

It is true that some liquor has been brought and shipped into Penn Yan during the dry years, and that there have been cases of intoxication. But it is also true that no divine commandment, no law made by man, has had the effect of entirely stopping the prohibited practices or acts. Our State laws prohibit murder and assault and larceny, etc.; but murdering and assaulting and stealing are going on just the same. What sane person would think of repealing our criminal laws for that reason?

Penn Yan is the county-seat of Yates Co. Since it voted dry, there has been so little business for the police court there that the people voted to abolish the office of police justice, with a salary of $600 per year, for the apparent reason that the justices of the peace are fully able to take care of the reduced number of criminal cases. Moreover, when county court was called on June 9, 1913, there was not a single case, either civil or criminal, to be tried. It was a surprising and wholly unprecedented situation. "It may be a coincidence," says one commentator, "but it is a most gratifying fact that this unheard-of condition occurred while Yates Co. did not have a legalized bar within its borders." It is no wonder, then, that the great majority of Penn Yan's physicians, eleven in number, ask the voters of Milo Township to vote "No" on all four propositions, and that every grange in Yates Co. has passed resolutions in favor of no license.

HOW PROHIBITION AFFECTS THE BANKS.

The two banks in Penn Yan report the following amounts of deposits:

Report of Sept. 14, 1909, the last during *license*. Total	$ 928,382.00
Nov. 16, 1909, first during *no license*	1,106,811.00
Nov. 10, 1910, *no license*	1,151,440.04
Dec. 21, 1911, *no license*	1,158,439.41
Dec. 26, 1912, *no license*	1,328,663.09

A total increase under the no-license years of $400,280.53.

No wonder the banks and their depositors are in favor of *no license!*

Finally let me quote the substance of Assemblyman Gillette's personal reply to my questions:

"As to conditions here, they certainly are better than they were when liquor was openly sold. A great deal of liquor is brought in here and slyly sold. But we seldom see a drunken man on the street. Almost without exception the merchants are in favor of the dry town now. I think that every place which used to be used for a saloon is now occupied by some legitimate business, but some of them at far lower rents. The owners of property which was used as saloons, and the hotels, have been hit pretty hard; but all other kinds of business are well satisfied. Factories and all employers of labor like it much better, as their men are sober and ready to go to work Monday morning.

What have the liquor men to say to such facts and statements? Will they claim that "prohibition does not prohibit?" **T. Greiner.**

La Salle, N. Y., July 24.

VERA CRUZ, MEXICO, BY ONE ON THE SPOT.

I have several times made extracts from letters from my nephew, Homer H. Root, a young man who is in the United States Navy, on the warship Arkansas. For some reason the Arkansas has been stationed for quite a time at Vera Cruz. Below is the letter:

Dear Uncle:—I have been here in Vera Cruz two months to-day, and can't say that I particularly like it here; but as I have to stay I might as well make the best of things. We had quite a little excitement here the first three or four days; but since then it has changed considerably. The people seem to think a great deal of us here since they have learned the truth. Before we came the people were told if the Americans win they would kill all the people they caught, but since they have found out we are here for their own good they are very nice to us. I don't think Mexico will ever get back on her feet without the help of the United States or some other big nation.

I have only nine months more before I receive my discharge. It does not seem possible I have been in the navy three years and three months; but I am not sorry I ever came into the navy, as it has taught me a great many lessons, and I have seen a great deal of the world.

Vera Cruz, Mexico, June 21. **Homer H. Root.**

It seems from the above that the great bulk of the people of Mexico are very poorly informed in regard to the attitude of the United States; and if there was ever a field where *missionary* work was needed, and where the gospel of Jesus Christ was needed, it seems to be just now in poor unfortunate Mexico.

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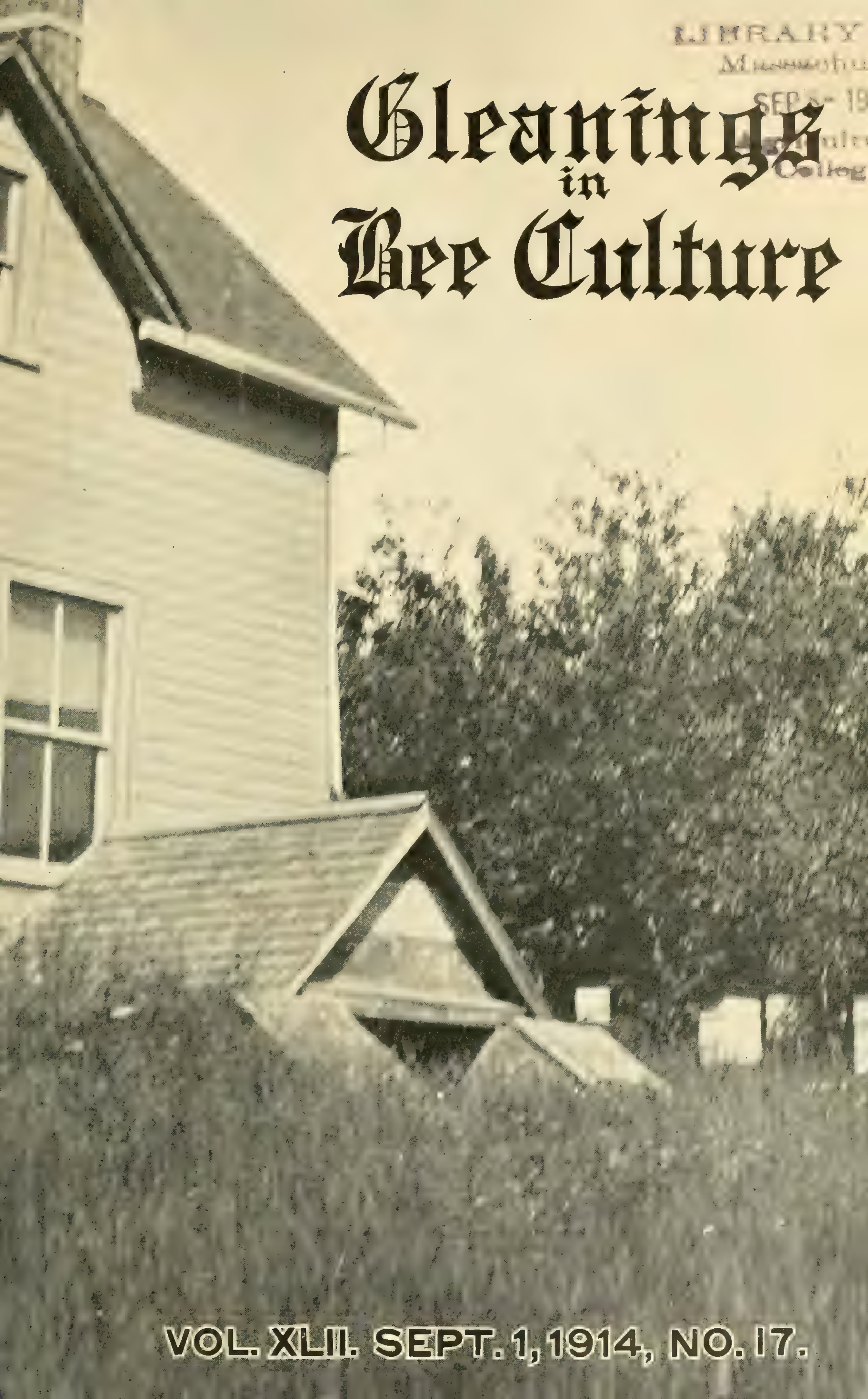
Gleanings in Bee Culture



VOL. XLII. SEPT. 1, 1914, NO. 17.

POLLYANNA
THE GLAD BOOK

By ELEANOR H. PORTER, author of "Miss Billy" and "Miss Billy's Decision,"

and "Gleanings in Bee Culture," one year, Both for $1.50

The book, POLLYANNA, has been one of the best-selling books of the season because of the winsomeness of the story.

Pollyanna, a lovable litte lass, is the daughter of a minister in the West. She is left an orphan and is sent back East to make her home with a staid and prejudiced maiden aunt. In winning the affection of her aunt and the respect of the villagers, she finds a place in the hearts of all her readers.

Send for the book as a surprise for the young people of the family who will enjoy Pollyanna's "Glad Game" as much as will the older readers. A little romance in the life of the aunt forms the plot of the story, and the reader finds himself wondering again and again how it will end.

As long as our supply lasts, we are offering a copy of POLLYANNA and GLEANINGS IN BEE CULTURE one year for $1.50.

Twelfth Printing

Read some of the Press Comments:

"Pollyanna is the 'gladdest' book that was ever written. It is of more real value than any thousand sermons to which I have ever listened."—**Passaic Daily News.**

"It is a book that charms at once by its style, and delights by its character-drawing and the interest developed by its story."—**The Boston Journal.**

"Pollyanna is a delightful character, and the book refreshingly natural."—**Cedar Rapids Record.**

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Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio
H. H. Root, Managing Editor E. R. Root, Editor A. L. Boyden, Advertising Manager
A. I. Root, Editor Home Department J. T. Calvert, Business Manager
Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLII. SEPTEMBER 1, 1914 NO. 17

EDITORIALS

Our California correspondent, Mr. P. C. Chadwick, writes that, owing to his being away from home on a visit, he was unable to get copy to us for his department in this issue.

Late Rains

Frequent rains are reported in various parts of the country. While the drouth is not broken by any means, as a result of the hot spell of weather, these rains are starting out fall pasturage everywhere, with the result that the bees are breeding well and gathering more honey than they consume in breeding. This ought to put the bees in nice shape for winter. In some cases where the sections were not completely finished on the hive they are now being completed with heartsease.

A State Association in Louisiana

A new State Association has recently been organized in Louisiana. Some twenty beekeepers met in Shreveport, July 11, and organized what is to be known as the Louisiana State Beekeepers' Association. This organization is not yet affiliated with the National Association; but as soon as sufficient members have joined, the intention is to affiliate with that body, and the officers for the first year are as follows:

President, C. F. Pease; Vice-president, W. S. Carney; Secretary-treasurer, L. T. Rogers, whose temporary address is box 361, Shreveport, La.

The next meeting is to be held during the State fair.

Bee Inspection in Idaho

From a newspaper clipping that we have received we learn that C. K. Macey, who is State bee inspector as well as horticultural inspector for Idaho, in his annual report filed with the Governor, gives the number of colonies as inspected in 1913 as 18,496; 1455 colonies were found to be diseased, or were kept in box hives, in violation of the law. The number of colonies treated was 817; number destroyed, 638. In other words, a little less than 8 per cent of colonies examined were found in bad condition, and it was necessary to destroy only a little over 3 per cent of total number inspected.

Mr. Macey estimates that the total production of honey for the year was a little over 50 carloads, or 1,500,000 pounds, having a value of about $150,000. Of this amount about 35 carloads were shipped out of the State.

The Smoke Method of Introducing Not Always Reliable

While we have had fairly good success in introducing queens by the use of smoke as directed by Arthur C. Miller, not a few of our subscribers, apparently, have not made a success of it, and are going back to the cage method. One thing we have learned is that one must follow directions exactly in order to insure success; and even where one does the best he knows, if it is the first time he tries it, he will often meet with failure. Apparently it is a method that cannot always be acquired wholly from directions, but must be learned by practical experience. Oversmoking or undersmoking will lead to failure. The smoker must be right and the colony must be right.

We had thought that we would recommend the smoke method in place of the cage plan of introducing with all queens sent out; but apparently we would better stick to the old plan for a while yet.

Honey-crop Conditions and Prices

The situation is about the same as reported in our previous issue—namely, that white-clover has been a comparatively short crop. The supply of alfalfa and mountain sage appears to be good. Late rains have stimulated fall flows in many localities. The condition of the market is in a state of uncertainty; and no one can positively predict what will be the final effect of the European war in causing an advance in the price of sugar and a tightening of the money market. At the present writing, Uncle Sam is distributing currency all over the country through the Paine-Aldrich act.

Taking a general view, it is probable that prices will not decline on table honey; but unless an outlet can be found for other honeys for manufacturing purposes there may be a decline in these goods. Europe, as has been stated elsewhere, is a very large consumer of honey from the West Indies and some of the South American republics; but as long as the war lasts, and for some time after, these honeys will have to find other markets, and naturally they will come here. It is that situation which is disturbing prices on our cheaper honeys.

Bees in a Candy-factory

One of the occasional objections raised to keeping bees within the limits of a city is that, during a dearth of honey, they may get to robbing exposed sweets. A case of this kind has just come to our notice. A candy-factory on the fifth floor of a building in Muskogee, Okla., does not use screens on the windows on account of being so high that flies are never seen. The latter part of July (when no honey from natural sources was coming in), bees, attracted by the exposed syrup, began coming in large numbers into the open windows, making the work of the employees engaged in the manufacture of the candy somewhat strenuous, to say the least.

This is not the first time that this sort of thing has happened. If screens are not needed to keep out the flies, it would seem as though any beekeepers living in the city and keeping bees within the city should go more than half way toward helping to defray the expense of putting in screens. We say this, realizing that there would probably be just as many bees around the unscreened windows, even if there were no apiaries located within the city limits. Bees are not observers of city ordinances; but, nevertheless, to avoid friction it would seem that any beekeeper interested should adopt the golden-rule principle.

The Effect of the War on the Price of West India and South American Honeys, and Other Domestic Honey for Manufacturing Purposes

Perhaps it may not be known, but nevertheless it is true, that Europe uses (or did use up to the war) immense quantities of honey for pastry and baking purposes. In fact, the Europeans among the peasantry class have for centuries back been using honey for cooking [illegible] we naturally use sugar. Now that the European market has been entirely cut off for these goods, especially those from South America and the West Indies, they are flowing into the markets of the United States. They must go somewhere, and at prices that will make them move. We already have ample evidence that they are being offered at very low prices—so low, indeed, that they are depressing the price of domestic cheap or dark honey. But the general advance in sugar may be the means of finding other outlets for these honeys that have hitherto been going to Europe.

There is no great loss without some small gain. Perhaps it will be so in this case. If the high price of sugar shall be the means of forcing some of these cheaper honeys into avenues of consumption hitherto never dreamed of, it will in the long run be a blessing. We shall hope so.

EFFECT OF THE WAR ON PRICE OF WAX.

In the same way, large quantities of wax from South America and the West Indies that formerly poured into the European markets, are coming to America. Some of these waxes are not suitable for making comb foundation, because they do not quite come up to the United States standard set for pure domestic beeswax. Again, some of them are too dark; but it is apparent that they can be used in the other arts, where ordinary domestic beeswax is employed. The general effect of these importations of cheap wax has caused a decline in the price of beeswax. See Special Notices elsewhere.

New Co-operative Association of Beekeepers

A new organization has just been effected which is to be known as the Tri-State Honey Exchange. This is a co-operative association of beekeepers organized to assist honey-producers in Minnesota, Wisconsin, and Iowa, to market their honey and obtain the highest possible prices, the profits of the association to go to the producers. The membership of this organization, which has been endorsed by the Minnesota Beekeepers' Association, is one dollar a year, and this amount will be deducted from the first shipment of honey sent in. Beekeepers are also invited to purchase one share of stock at $10.00 per share. Honey will be bought from beekeepers at any time, prices quoted on application. Payment will be made within thirty days, and all profits will be distributed according to the bylaws. The place of business is located in the Market Bank Building, Minneapolis, with L. M. Bussey as manager.

Dr. L. D. Leonard, secretary and treasurer of the Minnesota Beekeepers' Association, writes that the organizers *offer as a suggestion* that such co-operative exchanges be organized in different sections of the country, say in the different parts producing the same kind of honey, and that the National Beekeepers' Association become a sort of clearing-house for the exchanges of the whole country in the distribution of honey.

Is Sugar too Expensive to Feed? Can Cheap Honey be Used Safely as a Substitute?

The price of cane sugar has gone to a point now where a beekeeper will hesitate to feed up his bees with sugar syrup this fall providing he can get a good grade of cheap honey instead; but on account of the danger of transmitting bee disease, if he does not know its source he should mix in with it an equal volume of water, and boil it for thirty minutes, care being taken not to burn it, for a little burning will cause dysentery in all bees fed before spring.

Dr. White, of the Bureau of Entomology, has determined that ten minutes' boiling is sufficient to kill the germs; but we advise thirty minutes, because the average beekeeper may not do as good a job of boiling in ten minutes as Dr. White could do.

There will be a question whether this honey, even when carefully heated, will not cause some trouble before spring. It is almost a case of being "between the Devil and the deep sea." While sugar syrup is undoubtedly wholesome and safe, it is expensive. Boiled honey may cause dysentery, and, if not properly boiled, disease. In any event, to be on the safe side the average beekeeper would do well to move his yards of bees to localities where they can get fall pasturage, without any feeding of expensive sugar or bad honey, the same as we are dodoing in our local swamps around Medina.

The Bee in Advertising

An elegant little advertising folder, "Lessons in Saving," issued by the First Savings Bank and Trust Company, of Albuquerque, N. M., has just come into our hands. In many ways it is the most unique of any thing along this line that we have seen. It is beautifully decorated and beautifully printed; but the charming feature is that each page contains an illustration of saving, drawn from nature. In verse it is shown that the woodpecker, the dormouse, the beaver, the squirrel, chipmunk, etc., do their best to save and store away for the cold season the quantity of food sufficient to last until warm weather comes again. As would be expected, the bee and the ant are also included. The particular page in which beekeepers would be interested shows a hive under the shade of a tree with clover in the foreground, and the bees themselves busily at work. The poem on this page is as follows:

Now you know the brisk bee, starting off in the morn,
  Will go flying afar o'er the field
Where he gorges himself in a business-like style
  On the sweets that the clover-heads yield.
Then back home he flies, just as straight as a die,
  Stores his honey away in the hive,
Where he keeps it, all sweet, pure and dainty to eat
  When the cold days of winter arrive.

All this prepares the way for the final statement on the last page, "Save the pennies and the dollars will take care of themselves."

Hay from the Second Year's Growth of Sweet Clover

We have often said that beekeepers might do much toward educating the farmers in their vicinity to the value of sweet clover by getting together facts from noted authorities and having them published in local papers. If all the world could know what a part of the world knows about sweet clover, farmers would not be spending good money trying to eradicate what they consider a noxious weed.

One of our contributors, Mr. Henry Stewart, of Prophetstown, Ill., has an especially fine article in his local paper the *Prophetstown Echo,* in the issue for October 2, 1913. We have not room to quote all of it, but are giving two paragraphs herewith.

> For years I have been an enthusiast on fertilizer and pasture value of sweet clover, also on the first year's growth from the seed for hay. This first year's growth is fine, and resembles alfalfa very closely, but the second year's growth is very rank and sappy, and hay from this has always looked to me to be a pretty hard propostion to master. But while at the Whiteside County field meeting I had a conversation with Frank Coverdale, of Clinton County, Iowa. Mr. Coverdale is an extensive raiser of sweet clover, having from 100 to 200 acres in sweet clover each year, and he assured me that he now has his barns full of the second year's growth of sweet clover, and he says the hard proposition ceases when you know how.
>
> If going at it in the ordinary way of making hay, failure is inevitable. If allowed to cure in the swath, the leaves would all drop off long before the stems would be dry; and if cut short, as is ordinary grass, a large per cent of the plants would either be killed or set back in their growth. He cuts his first cutting the last of May. He raises his mower to cut about as high as possible. Sweet clover is peculiar. New shoots do not start from the crown, but each stub cut off forms a new crown of shoots; and if these stubs are cut too short they are liable not to start at all. This hay is just allowed to wilt nicely when it is put into small diameter (but high) cocks, and allowed to cure in the field for several days. He

says these wilted stems will hang down and shed water like slough grass, and rain will do it but little damage.

Should the Price of Honey Advance in Proportion to the Price of Sugar? Honey for Canning Purposes

SUGAR has now gone up to nearly 10 cents a pound—just double the figures of two months ago. While the price of honey might be adversely affected, on account of the war in Europe, since it is a luxury and not a necessity (on the principle that the price of luxuries declines as the price of necessities climbs during war times) yet it is very clear that if sugar goes up to 10 cents a pound our housewives during the canning season will look for a substitute, and there is no substitute for sugar equal to honey. Our own experience has shown that honey makes the best kind of preservative for fruits. Honey for manufacturing purposes such as dark and fall honeys as well as many southern honeys will be cheap. (See editorial on the effect of the war on cheap honeys.) If sugar is held at 10 cents, it will mean that honey will be used for every purpose in the household, such as sweetening coffee, making cakes and cookies, etc.

During these troublous times the housewife is going to figure close; and if she can get honey cheaper than sugar she will use it in preference. The probabilities are that the war will have the effect of advancing the price of honey in sympathy with that of sugar.

We would suggest that producers, especially those who have extracted honey for sale, announce through their local papers that honey is an excellent substitute for sugar for canning purposes, and that it will take the place of sugar in general cooking. Now is the time for beekeepers to get busy and push the sale of honey in avenues formerly supplied by granulated sugar. The point to make is that honey, a natural preservative, is, in most cases, not only a more healthful sweet than cane sugar or New Orleans molasses, but one that makes the cake or canned fruit, as the case may be, more appetizing. Strawberries and peaches, especially when put up with honey, retain their natural color longer and acquire a richer flavor approaching more nearly the flavor of the fruit when fresh. One must eat strawberries canned with honey to appreciate the richer and more natural taste and the brilliant red color instead of the usual pale brown. Beekeepers themselves should practice what they preach in this respect in order to be able to preach more convincingly.

Another effect of the advance of cane sugar will be an advance possibly on table honeys. Whenever these are cheaper than sugar they will be taken on account of their flavor.

On Whom does the Responsibility of Misbranding Rest?

IN a recent editorial we gave it as our opinion that the penalty for misbranding comb honey so far as the net-weight law is concerned would rest on the producer. It is more accurate to say that such penalties will be put on the shipper or owner who ships the goods out of the State. In some cases he may be the producer. In other cases he may be only the middleman. Under a strict construction of the law the producer does not necessarily have to label or mark the weight on each individual section of comb honey *if* he sells to some middleman or dealer within his own State. Mr. Middleman in most cases is going to require* the producer to mark all his comb honey; but neither he nor any one else can ship out of the State unless every section is marked in accordance with the law; so if he is going to ship into another State he will have to do the marking, and make the producer pay for it, by deducting the cost in the final account of sales. We know, as well as we know any thing, that Mr. Middleman and Mr. Producer will in some cases have a wrangle over the propostion. Here will be also a chance for overcharge for doing the work. The middleman can make out a bill for so much time in marking the weight on each section; and if he claims in addition that the honey was so poorly graded that he had to pay for an extra amount of labor on the job, whether the account is true or not, the producer will have to pay for it. So we advise every producer to mark his own honey, even if he sells in his own State. Then in the matter of adjustment he can pay according to his work.

This net-weight law is going to cause some wrangles and confusion; but if the comb honey is all marked according to its appropriate weight (and that means every section), both middleman and producer have an exact basis for their deal; and if legal proceedings have to be resorted to for collection, the producer can certify to his exact weights on the basis of his markings on his sections. As the court would have reasonable assurance that he would not dare to misbrand, it would give him an award accordingly.

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* He can not do this unless he so stipulates *before* purchasing the honey.

STRAY STRAWS

Dr. C. C. Miller Marengo, Ill.

IN FEEDING as recommended, p. 570, you will find cork chips excellent in place of straw or dry grass.

IN JUNE I found five cases of European foul brood. In one case the queen was caged ten days, in another eight days, and six days in each of the other cases. The treatment was effectual, and I've seen no European foul brood since.

BUMBLE-BEES are working on my alfalfa, but no hive-bees. Can it be that east of the Mississippi the flower-tubes grow too deep for the hive-bees? [Possibly; but, if we remember correctly, the alfalfa-blossoms do not have long corolla-tubes, either east or west.—ED.]

"IT IS A FACT that the public prefers honey with color to the whitest, for they are better acquainted with it," p. 575. "Locality" again, friend Chadwick; here they're acquainted with light honey, and none can be too white for the market. [In some localities in New York, some people consider no honey quite the equal of buckwheat; and as buckwheat honey is very dark in color, the color itself cuts no figure with them.—ED.]

EVER think what a little thing makes the difference between a queen and a worker? Just two days' feeding. For the first three days the young worker gets the same food as its royal sister; then it is "weaned" and gets coarser food for the remaining two days, while the better bill of fare is continued to the royal youngster. And what a difference that two days' feeding does make! The young queen develops in three-fourths of the time taken by the worker, and, paradoxically, its span of life is twenty times as long.

THE flow was as good this year as last, but tired out sooner. If I get a third as much as last year I'll not whine. [If you had been further south you would have secured less than one-third, and if you had been located further north you might have secured as good a crop as you did the year before. The year 1913 was a record-breaking one, during which you produced 266 lbs. of comb honey per colony from 73 colonies, or a whole carload of comb honey. If you secured one-third of that amount it would be 89 lbs. per colony. That is good enough almost any year.—ED.]

T. K. MASSIE, you ask, p. 627, why not adopt a section that holds a pound net honey. Surely one of your experience must know that bees have not the greatest respect for our desire for uniformity. One colony will put more honey in a section than another; the same colony may fill it fuller one year than another, or at one time of the season than another in the same year; and there may be a difference of two ounces or more between the heaviest and lightest sections, although all are well finished and sealed. I'm afraid that the finding of a section of such size that it will always hold just a pound of honey when finished will always remain a dream.

ACCORDING to p. 616, packing sections in cartons will "avoid the labor of marking each individual section." I suppose that means to have different lots of cartons with weight printed on them. Not knowing in advance what proportion of each kind we'd want, that would involve having a good many extra cartons on hand. In either case the weighing must be done; and doesn't it take less time to stamp a section than to straighten the carton and put the section in it. [If comb honey is graded into three grades, as it should be, there will be only three classes of cartons to be used. If the exact weight of every section is marked, the carton proposition will be impossible.—ED.]

IT LOOKS, p. 618, as if we are given the choice to have three rubber stamps to stamp the weight on our sections or to write in the exact weight. Why not have a set of stamps varying by ½ ounce—10, 10½, 11, 11½, etc.? If we have 6 sections, weighing respectively 10, 10½, 11, 11½, 12, 12½ ounces, we shall lose 2 ounces by having the three stamps marking 10, 11, and 12½ ounces instead of the full set. In a shipment of 5000 sections that would make a loss of more than 100 pounds. Where can we get stamps? and at what price? [Doctor, if you tried to mark the exact net weight on every section you would have a job on your hands. You will find that you will get the rubber stamps mixed up, and make mistakes. The Colorado plan of marking the minimum net weight, and dividing all the sections into three classes, or grades, necessitates the use of only three stamps, and, in the judgment of the great majority of producers so far as expressed, it is the only practical plan to pursue. To save the loss of all sections weighing more than the minimum specified, the whole caseful of sections should be sold by weight less the tare of sections and shipping-case. We do not know a producer in the country who is thinking of undertaking the endless job of marking the individual net weight on *every* section. For rubber stamps, see adv. section.—ED.]

NOTES FROM CANADA

J. L. Byer, Mt. Joy, Ont.

This is the first time that feeding in July or August has been necessary in our locality, since I can remember. Owing to the abundant stores our own bees had this spring, *we* were saved from doing this; but many who bought pound packages of bees in May found some small colonies starvevd in July before noticing their desperate condition.

* * *

Glancing over the mass of reports in Aug. 1st Gleanings, one cannot help coming to the conclusion that, taking all the honey-producing sections of the United States and Canada in general, the crop as a whole is very light. So far as Ontario is concerned, quite a lot of honey was carried over from last year; and while we may reasonably expect firm prices this year, it is not at all likely prices will be much if any above opening prices of last season. Of course, should the present great war continue long (which God forbid), it is hard to say what might happen, as all the staples have already taken quite an advance.

* * *

European foul brood, or black brood, as many of us prefer to call it, has made its appearance in Victoria Co., in the vicinity of Lindsay, Woodville, and other places in that vicinity. It looks as though, sooner or later, no place in Ontario would have a monopoly of this disease. Universal requeening with good Italian stock seems to be about the only remedy for it. Whether Carniolans are as immune as Italians is a question not yet settled, apparently, although some beekeepers in affected places in New York and Pennsylvania have reported to me that they found the Carniolans superior to the Italians in this respect.

* * *

Speaking of outdoor feeding (page 570, Aug. 1) A. J. Knox, of Orono, Ont., tells me that, although there was a great dearth of nectar at time of feeding, he had to start the bees with a little honey before they would touch the syrup made on a one-to-ten basis. He reports no robbing nor fighting when feed was being taken up by the bees, and that it was no trouble to work in the apiary so long as the thin syrup was present for the bees. No question but that the thin syrup is a boon if work has to be done during a honey-dearth such as we have had in a few counties adjoining Toronto this year.

* * *

The weather in this part of Ontario is to date, Aug. 10, quite similar to what it has been all summer—very dry. Clover for next year, in so far as alsike is concerned, gives promise of being a negligible quantity. As stated in last batch of "Notes," the white-honey crop is very short. Best estimates place it at about 15 pounds per colony for the Province of Ontario. Counties adjoining Toronto have practically no white honey at all, while the main amount of surplus white honey has been produced in the northeastern counties—places where the crop was a failure last year. Our five apiaries in York and Ontario counties did not store a pound of really white honey; but at the yard 100 miles north, late in the season we got a spurt in nectar secretion that changes matters very agreeably so far as that locality is concerned. No large crop there by any means; but when total failure is staring one in the face, a good half-crop coming unexpectedly is not to be despised.

* * *

Some ten or twelve years ago I happened to notice what at that time I thought was some kind of shrub, a plant about three feet high covered with small rose-pink blossoms on which the bees eagerly swarmed during July and August. Every year I would go to the spot, and the few plants were always there, for, although the place was uncultivated, yet the plant in question never spread. Last week I was at the north yard, and I found out that the plant in question is fairly common in rough land up there. The bees were working freely on this plant; and a peculiar thing about it is that the pollen is a vivid green. However, after coming home again I at once walked the half-mile or so to the few plants near home, and found that they were there as usual. I cut off a complete plant with my knife, and was surprised to find a milky exudation issue at once, and I saw that it was not a shrub, but a perennial—something of the milkweed family. Just then I happened to read the editorial in Aug. 1st Gleanings regarding swamp pasture, and I came to the conclusion that my rare plant is the swamp milkweed. A text-book on botany was hastily consulted, and, sure enough, that is what it is. It surely is a fine honey-plant, judging by the way the bees work at it, and I have been wondering if it is at all common in many parts of the Province. Although I have lived all my life in York Co., the few plants in the one place are all I have ever been able to find until I found it fairly plentiful in a few places up at the north yard last week.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.

HONEY-CROP REPORTING.

There will doubtless be considerable variance in the reports sent to the Bureau of Statistics at Washington. Some of the reporters will report for their own apiaries only, while others will report for their district or county. The benefit on the whole is going to be considerable, as can be seen from the report already sent out.

* * *

THE HONEY CROP.

Honey-crop conditions can now be pretty well defined. The shipping crop will not be as large from Colorado as last year. The conditions have not been so generally favorable. In the vicinity of Boulder the production will not average one case of comb honey to the colony, while in some districts, not more than twenty miles away, it will double and treble that amount. We think that the lack of several good rains in July is the reason for a short crop near Boulder. The district is overstocked, too, which makes the crop short except in the best years. The bees operated for extracted honey have given a better account of themselves this year than the comb-honey colonies. The flow has been so slow that it is very difficult to get super work done. Swarming has not caused us any trouble this year; in fact, conditions would have been better if there had been more swarming.

* * *

MALICIOUS DESTRUCTION OF BEES.

My brother, W. H. Foster, has had a severe loss from some disgruntled person attempting the destruction of fifteen colonies of bees by pouring kerosene over the bees and frames. Three colonies were destroyed outright, and the others weakened very seriously. Several hundred pounds of honey were ruined.

The writer has had his troubles from honey-thieves, as the following clipping from the *Daily Herald,* of Boulder, shows:

CATCHES U. S. TROOPER STEALING HIS HONEY; WESLEY FOSTER OUTGENERALS SOLDIER, BUT TUMBLES INTO DITCH.

By superior generalship, Wesley Foster, the apiarist, last night surprised and identified a federal trooper who is suspected of having been responsible for the theft of about 200 pounds of honey from the Foster beeyard a mile east of Superior. The trooper, Private Snaw, is now under arrest at the federal camp in Superior.

Foster, accompanied by Elwin Townsend, was returning to Boulder on a motorcycle from his beeyard near Lafayette, when, about 7:30 o'clock, he met the soldier near the Superior yard. He stopped to talk with the soldier for a few minutes, and, suspecting him, Foster led him to believe that he was coming right into Boulder.

Instead, as soon as he got to a place where he could hide his machine, Foster dismounted, and, with Townsend, started back to the beeyard. He was armed with the handle of a pitchfork. Entering the beeyard he found Snaw. Then throwing the pitchfork handle up as though it were a rifle he commanded the trooper to throw up his hands. The latter obeyed, until, when Foster moved closer, he realized that he was not looking into a rifle. Then he turned and ran for the camp with Foster after him.

A cross-country race ensued, with Foster gaining all the way. The trooper leaped one ditch and then led Foster to another. In trying to clear the second, Foster stumbled and fell in. Snaw got away. Nothing daunted, Foster picked himself up and proceeded to the camp where he made complaint to Lieut. Oliver who is in charge. The latter ordered Snaw, who was the last man to enter camp, to come out. In the darkness, Foster and Townsend identified the man.

The federal trooper was not alone, however, as he was with two others who have since been apprehended and placed under arrest. The other two are striking miners, and the three got away with about 200 lbs. of comb honey in four raids on the apiary within one week. Since catching these parties the yard has not been molested.

* * *

ORGANIZATION AND SELLING.

O. B. Metcalfe has an article on pages 556-557, July 15, on organization in the marketing of honey. Mr. Metcalfe intimates that the aim of organization in selling is to raise the price of honey. This may be the aim of some organizations, but it should not be the main aim of a selling organization. Organization should be made to bring about sane distribution, and then the price will largely take care of itself. Demoralization in distributing methods is responsible for low prices quite as much as beating down the prices by the dealers. The organization that will push the product into the unsupplied grocery stores and keep it there will build a market that will take honey at a fair price almost any year.

Comb honey need not retail for more than fifteen to twenty cents a section, and extracted honey need not cost the consumer more than twenty-five cents for a pound jar to bring the producer a good price. But he will have to have an open channel between his apiary and the consumer's table. There cannot be too many buyers, brokers, jobbers, wholesalers, and retailers between. Of course they are not competent honey salesmen in many cases. If they were I believe we could pay them their seemingly heavy toll.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

PREVENTION OF SWARMING.

"What causes bees to swarm and how can it be prevented?"

Well, I am just foolish enough to believe that the swarming of bees is due to the same reason that explains the sitting of certain "biddies" amongst a flock of hens. And allow me to say right here that, when any colony of bees get the swarming fever, the stopping of their swarming is about as provoking to the apiarist as is the "breaking up of a setting hen" to the man who is making the production of eggs his means of livelihood. Once in a while there is a hen that one can frighten from her nest by suddenly throwing an old blanket over her and giving a terrific yell at the same time, but the majority may be taken off the nest and they will "set" on a board or on the floor or even on their roost. And so it is with the bees. Once they get the swarming fever, the majority of the colonies seem very determined. With one the queen-cells nearly ready to seal may be cut, and the bees will give up the swarming; but with the majority it is of no use whatever. Swarm they will, or else "sulk" during the time of honey harvest so that they are of little good. All animated nature seems to have heard the mandate "Multiply and replenish the earth;" and why should bees be an exception?

The presence of a large amount of brood seems to be the main cause leading to swarming, especially where this is combined with a brood space a little under the capacity of the queen. Under such conditions, and a yield of nectar a little more than sufficient for the feeding of this brood, so that the egg-laying capacity of the queen is becoming more and more encroached upon by the storing of this nectar in the brood-combs through the failure in putting on the surplus receptacles at just the right time by the apiarist, swarming is bound to come, unless a sudden dearth of nectar of long duration occurs.

There are two remedies for such a state of affairs, the first of which I now consider preferable. Do not allow such a state of affairs to exist. Prevention of the swarming fever is much more preferable than a cure, inasmuch as it brings much better results. When we have reason to believe that the brooding capacity of any queen is about to be encroached upon for any reason, *just* then is the time for putting a queen-excluder on top of the hive the colony has so far occupied, and over the excluder another hive of the same capacity filled mostly with frames of empty comb. Unless there is an abundance of honey below, it is better to have one-fifth of the comb capacity given containing honey, so that the bees will consider this upper hive their "store room," and immediately commence to give the queen the needed room for her eggs by removing the most if not all of the honey from the brood-combs to those above. This extra room not only stops any encroachment on the egg-laying of the queen, but also gives the bees a chance to "spread out" at night when all have returned from the fields, and in this way the swarming fever is held in abeyance for from two to three weeks longer than it otherwise would be, or until both hives are well filled almost to crowding with mature bees, and the rush of nectar from the clover or buckwheat fields has commenced. Now is our time for action again. The upper story should now be put in place of the lower one, and the sections or extracting combs put on as the case may be. Then the queen and all the bees should be shaken from the brood-combs they are occupying, thus consolidating the whole force of bees in the hive they had previously been occupying as a "store room," and the hive of beeless brood given to some nucleus or weaker colony. If the surplus apartment is of sections, some of those in the super immediately above the "store room" should be full of comb left over from the previous season. In this way the bees take the hint at once, that their store room is still above. The swarming fever is still kept in abeyance, the honey removed to the sections to give place to eggs, and this removal supplemented by the nectar coming in from the fields causes the sections to be filled as if by magic, together with satisfied bees and a more than satisfied apiarist.

The other remedy is, when the swarming fever has prevailed till queen-cells are well under way, or the colony has swarmed and the swarm returned, remove every brood-comb having any brood in it and replace with empty combs, or at least those having no brood. While a little honey seems to do no harm, a little brood left often upsets the whole thing, for the colony is apt to start queens-cells upon it and then swarm. The brood-combs that are removed can be used as was the beeless brood and thus any weak colony can be brought into a profitable condition, both colonies doing fairly good work for themselves and the apiarist.

GENERAL CORRESPONDENCE

WINTERING BEES IN THE CELLAR AND ON THE SUMMER STANDS

BY R. F. HOLTERMANN

With all that is known in connection with the wintering of bees there are still tremendous losses recorded, and from winter to winter a great difference in the outcome of this important problem. What is the reason? *Is* there a reason? These are questions which may legitimately be asked. That everybody engaged in beekeeping has something to learn about this question is undoubtedly true. There is no one who knows it all.

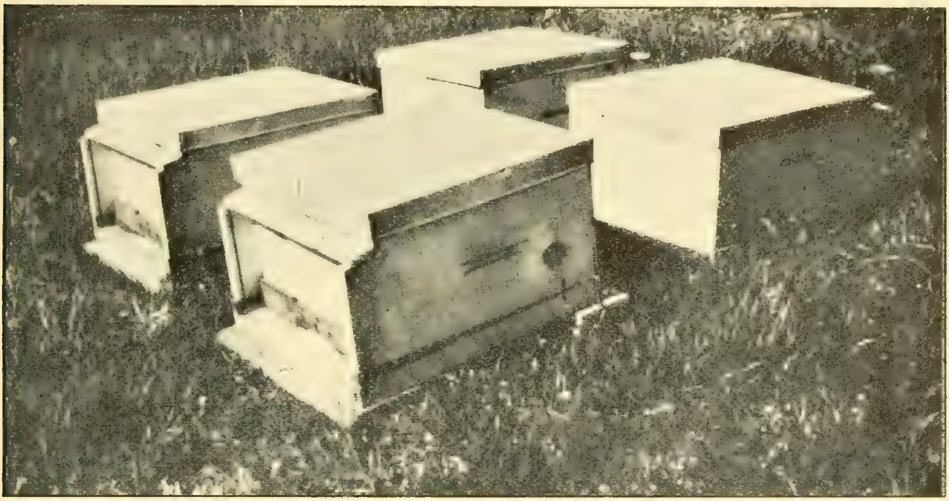

FIG. 1.—Four of Mr. Holtermann's colonies on their summer stands, in which position they are easily brought more closely together for putting into the winter case.

Undoubtedly like conditions bring about like results. If the results are not alike with conditions alike so far as we can judge, it is simply because conditions that have not yet come under our notice have not been alike, or because we have made an error in judgment.

I am not at all prepared to say that I understand how to winter bees most successfully, but I am sure I do know how to put bees into winter quarters and have them come out with very little winter loss. But does it pay to carry out practically this knowledge? I mean that there is a question before me at the present moment. The bees during the early part of the clover bloom have gathered quite a perceptible quantity of honey-dew. This went into the brood-chamber, and was stored and capped about the brood. Now, I know that honey-dew in winter stores is alien to successful wintering. However, I have some 800 colonies to deal with; and to take that honey out of the brood-combs and return each colony to its own brood, and do this in the robbing season means a tremendous outlay of very unpleasant work and nerve tension in seeing that every thing is done right. Then there is the syrup to make and feed, with the loss in weight through storing. Shall I run chances, knowing that the bees in this locality generally get one or two cleansing flights during the winter, coupled with the fact that there is not much honey-dew? So in wintering as with other problems in connection with the apiary, it becomes a question not only of knowing the best conditions but also of applying the knowledge in management; and not only that, but of judging as to the wisdom, from a business standpoint, of running risks or chances to avoid an outlay of time and money.

I am not prepared to say to what extent humidity, temperature, fresh air, and disturbance by other colonies, enter into the cellar-wintering problem; but I have no doubt all are important factors. To find out to what extent they are important is beyond the means and province of the individual or private beekeeper; but if our government apicultural stations want to do valuable work, and benefit beekeepers, they will do something along this line.

For inside wintering, evenness of temperature is a factor; yet I would sooner allow a free access of not extremely cold outside air through open doors continually than to maintain an even temperature at the expense of fresh air. I have no doubt some of us have greatly overestimated the number of colonies that should be kept in a given space. Hives closely set together obstruct ventilation, and the more compact they are, the more one colony disturbs another when its wintering conditions are bad. For this and other reasons I prefer a sand or gravel floor in a cellar. It conducts sound or vibration less than cement or board, and for the same reason every pile of hives, and, as far as possible, every hive, should be on a separate bench or stand.

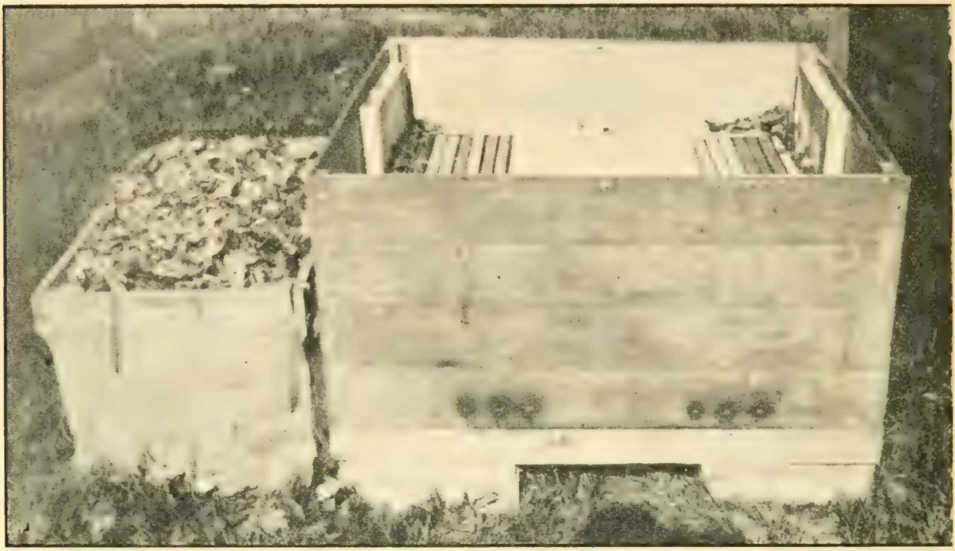

FIG. 2.—One of the winter cases for four twelve-frame hives with top packing removed. The basket at the side holds the forest leaves which go to make up the rest of the packing.

OUTSIDE WINTERING.

So far as my experience goes, outside wintering under proper conditions is better in all the counties lying directly north of Lake Ontario and Lake Erie. I have stated at some of the New York conventions that I felt sure that bees could be wintered successfully outside much north of what we have believed. During the past spring I received information from Mr. Harold Kinder, Rockingham, Renfrew Co., Ontario, where the temperature often drops to 40 degrees below zero, that he has wintered bees successfully packed on their summer stands, and that a friend of his at Rockingham (Mr. Pomrank) has wintered outside for years with eminent success. This report widens the area for outside wintering very materially.

The system I advocate is to see that every colony has a young laying queen, or at least not a failing queen, to contract the brood-chamber so the bees fairly well cover the combs in October weather; to pack the bees in this section by the end of September, or even two weeks earlier, and to put four colonies in one outer case. Then in the row I want the first case with entrances to the side, the next case no entrance on that side, thus breaking the rows for flying all through, and preventing drifting. I set the winter cases on blocks six to nine inches from the ground. About the apiary, which should not be larger than 45 to 50 ft. square, I put a fence 8 feet high.

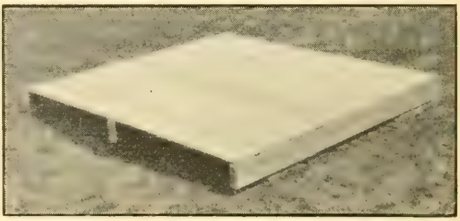

FIG. 3. -Bottom of Holtermann's winter case.

The later the bees are fed for winter the better, so long as it is done before settled cold weather. This is particularly true of bees packed. With us, Oct. 15 is not too late. A feeder that brings the food in contact with the top of the hive is best for cool or cold weather feeding. I use a two-quart jar with a perforated top.

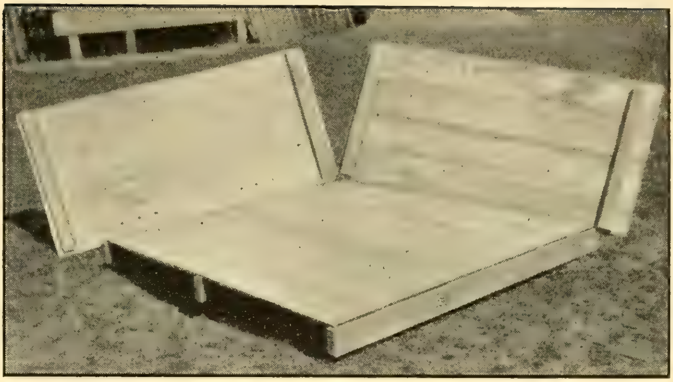

FIG. 4.—The end and sides of a case ready to assemble.

To mix the syrup I use $2\frac{1}{4}$ parts of sugar (by measure) to one of water. Bring the water to a boil, then stir in the sugar until dissolved; then add one teaspoonful of tartaric acid (first dissolved in water) to every 12 lbs. of sugar. The main object of the tartaric acid is to prevent crystallization of the thick syrup. Now this syrup is free from pollen and honey-dew, and, having been fed late, will constitute the early winter stores for the bees. In our locality a strong colony well wintered, during almost any spring, with the help of the beekeeper bruising capped honey when natural stores are not coming in, will use all the stores that are left in the hive.

METHOD OF PROTECTING FOR WINTER.

Fig. 1 illustrates four colonies of bees before putting them into the winter case, showing their position in summer, two side by side, and the pair back to back. During summer they should be far enough apart to permit one to get around them when the supers are on. In the packing-case they are close together so one hive protects the other from cold on two sides. There is about two inches of packing at the bottom, and four to six at the front and sides. Fig. 2 shows the packing-case with basket of forest leaves standing by it. The basket is made out of a wooden framework covered with burlap, and large enough to hold the top packing. It is made of light material for convenience in carrying. In the case where the cloths are partly removed, two 12-frame Langstroth hives can be seen. Two covers are also shown set at the side of the hives against the outer case where they act as packing. For the 12-frame hives the sides are made of 4-ft. walls high enough to permit a super and queen-excluder on the hive.

Fig. 3 shows the bottom of the case. Notice there are three one-inch by four-inch foundation pieces. In length each end projects $\frac{3}{8}$ inch beyond the platform board, and the outside 1 inch by 4 inch pieces for their entire length also project $\frac{3}{8}$ inch beyond the end of the platform boards, giving only $\frac{5}{8}$ inch of a nailing surface for the boards resting on them. The object of this is to let the side pieces of the case drop over the floor of the case, thus shedding water, the sides resting on the projecting platform supports.

Fig. 4 shows the end and side of a case and its relative position on the platform.

Fig. 5 shows another view of the side and end of the case.

Fig. 6 shows the under side of the cover and the method of nailing the cover-boards on the cleats. The latter fit otuside of the case. The wooden cover made of one-inch boards is made water-tight by covering with roofing-paper.

Fig. 7 shows the winter case packed and

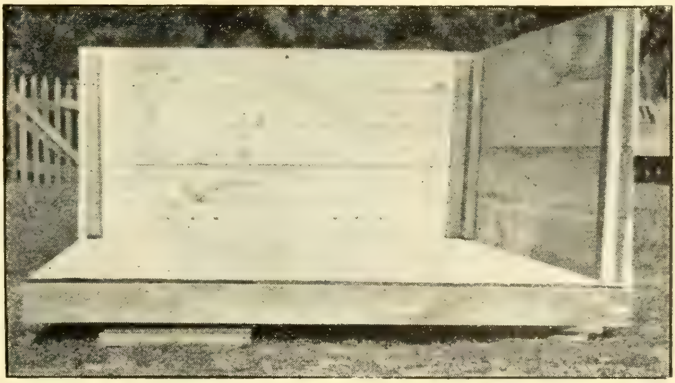

FIG. 5.—Another view of the end and side of a case, showing their position on the floor or platform.

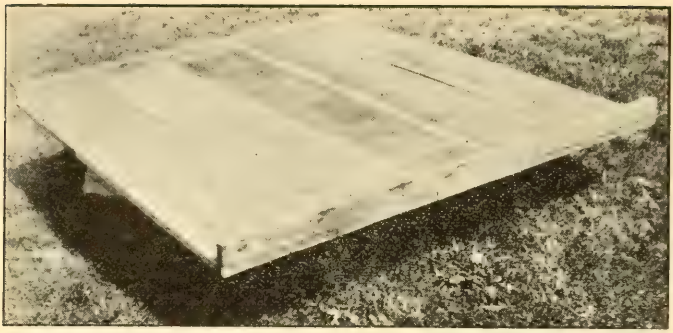

FIG. 6.—The under side of the cover. The cleats telescope over the sides of the case.

mounted on concrete blocks. These blocks are 9 inches high, 9 square at the base, and taper to 6 inches at the top. These blocks are a new thing for me; but I have found where the winter case is close to the ground the ice, during the winter, and particularly in early spring, is close to the entrance of the case, resulting in many bees chilling on the ice.

I have no block nailed to the outside of the case and under the entance, because it becomes a platform for snow, and tends to conduct snow into the entrance. The case is painted a dark red, with a paint commonly used for barns.

Brantford, Canada.

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A SATISFACTORY EXPERIENCE WINTERING IN A PIT

BY B. BREWSTER

My experience last winter in wintering bees in a pit may be of use to some of your readers in the newly settled parts of this great West. For ten years I had uniformly good results from wintering in the cellar under the house; but in 1912 I put 83 colonies down; and though, no doubt, there were several factors which contributed to the disaster besides that of overcrowding, I lost 30 colonies, and many others contained only a small cluster four or five inches in diameter. This latter condition may have been partly caused by a high wind from the south which sprang up before 9 A. M. on the morning the colonies were put out, which caused the bees to drift toward the hives on the south row, with the result that I had 12 very strong colonies and a splendid opportunity of testing the Alexander method for weak colonies. (I succeeded in every case; the two put up on the seventh day were rather inclined to quarrel, as many dead bees were put out the first day; but ultimately they united and were built up to good strong colonies.)

Having about the same number to winter in 1913 I remembered the cover picture of the Jan. 15th issue for 1912, which showed a clamp or pit in course of construction. Noting that a sandy soil is indispensable, and as we have that to perfection, I decided to put 25 colonies into a pit. I was unable to find the copy of GLEANINGS with the picture and instructions, so I had to depend on my memory and put them in with bottom-boards on, and closed the pit Nov. 2. I put a stovepipe in the center, but covered it over with four burlap bags held down and packed around with dry soil. I left a space between the poles, also between the hives, so that I could lower a thermometer and take the temperature during the winter. We

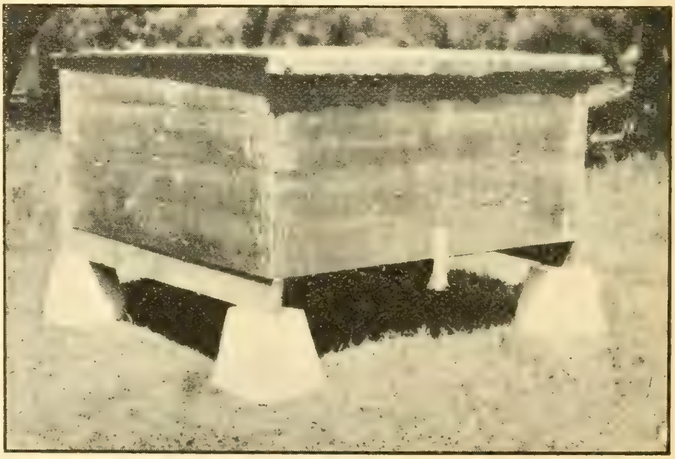

FIG. 7.—The winter case complete, standing on four blocks to keep the ice away from the entrance.

had no snow during November or December, and, though exceedingly mild, the frost got deeper into the ground than it would if covered with snow earlier in the season. The temperature in the open was about the maximum for the day.

	Temp. in open	Temp. in pit
Nov. 4	12 degrees	42 degrees
Dec. 1	40 “	42 “
Dec. 15	44 “	42 “
Dec. 21	0 “	36 “
Feb. 2	30 “	36 “
Feb. 18	5 “	36 “
March 13	40 “	48 “
March 25	5 “	48 “
April 21	58 “	50 “

The pit was opened April 25, and all the bees were alive, though the entrances were closed up with mold and dead bees. As the quilts had been loosened before putting in, they did not seem to have suffered much by leaving the bottom-boards on. The number of dead bees in the pit was very small, and I had never had such strong colonies after wintering in a cellar before, and the amount of stores used was very small compared with those in the cellar which had a temperature of 48 to 54 degrees all winter.

This may not be, as you may remark, “ a universal solution of the wintering problem,” yet to many beginners in northern latitudes, often with very small cellars, if other conditions are right, such as sandy soil and snow on the ground all winter, it may be very useful; and for an outyard, if I could get the right kind of soil I would rather pit them than bother people who have no use for bees by renting cellar room, which at the best is none too good, many of them being cold, damp, and the air in them very impure.

Greenridge, Manitoba.

FALL MANAGEMENT THAT INSURES ROUSING COLONIES THE NEXT SEASON

BY W. A. LISHMAN

Strength of colonies in accordance with the season is the most important general requisite. What years ago would have been considered rousing colonies, many now class as medium. This change has been brought about by more care in the fall, the rewards being just as large as the fall treatment was efficient. Yet, backed up by my own experiences of this season's work, I think nearly all beekeepers fail to study out and practice conditions that will produce such strength of colonies in spring that one such will be worth three ordinarily treated ones.

To-day (June 20) this was certainly impressed on me when working some colonies that had received different fall treatment. We examined 17 that were wintered in an eight-frame L. body, and given room May 15. They had from eight to ten frames of brood two-thirds to three-fourths full. Many would consider these good colonies when clover was just beginning. What would they say at the sight that met our eyes when we opened up, for the first time since last August, two colonies that were wintered in two ten-frame bodies, with frames spaced 1½ inches from center to center. We certainly said something, and so would any enthusiast of bees. Three times as many bees and twice as much brood as those eight-frame L. colonies would encourage any one who wishes “ more bees ” but fewer colonies. The lower frames were solid brood from top to bottom, with some pollen in the top of the outside combs. Those in the No. 2 body would alone equal many an eight-frame L. colony in two bodies. When such are kept, there is no need of having 200 or even 100 colonies—60 to a man is all I aim to keep.

How to assist the bees to become such profit-producers takes a rather long time to tell; for, all summer and fall, every thing that is done helps to improve them.

I believe that colonies that breed heavy in summer quit too soon in the fall, and by all means a young queen is needed, not only for late laying, but so she will not fail next spring. Even some, not a year old, give out before I am quite through with them.

Being assured the bees and queen are right, the attention is centered on their housing conditions. Our last extracting-body is taken off about Aug. 26 to Sept. 1, at which time the brood-body is raised up without disturbing the excluder, and put under it those containing combs just extracted, or others deemed good enough. The four outside ones are usually combs drawn from foundation the same season, while the other six are good worker combs more or less clogged with pollen. Those clogged the worst are alternated with those not so bad. Then the colony is fed quite liberally for about three weeks, with a three-to-one honey mixture so they will gain about 20 lbs. After Sept. 21 we feed sugar syrup every three days until Oct. 15. About 15 lbs. of sugar is allowed per hive.

The result of such work is that we have brood in our hives by the first of November.

As we pack them in August there never is any danger of chilled brood. The bees have a fine clean place to cluster when the last brood has issued, and can use the ¼-inch space between body and frames as a passageway. When they want food they go up until in March, when they find themselves uncovering a fine supply of pollen that had stores put over it by our liberal fall feeding.

We may, then, conclude that better success with bees comes from extended fall breeding, covering up or using up pollen so the combs and bees are bright and clean during winter, and the uncovering of a pollen supply in March by a force of bees that can allow a queen to lay to the limit of her powers.

Cayuga, Ont.

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SOME UNUSUAL ADVICE IN REGARD TO WINTERING BEES BY ONE WHO HAS HAD MUCH EXPERIENCE

BY J. E. HAND

The wintering of bees in the Northern States and Canada is undoubtedly one of the most important problems connected with beekeeping; for a poorly wintered colony of bees cannot be depended upon for best results in honey production any more than a poorly wintered cow can be expected to yield a heavy flow of rich milk. The wintering problem has perhaps been solved oftener than most other problems, and yet but little improvement has been made in wintering methods during the past quarter-century. A noticeable indication of improvement, however, is the present movement back to outdoor wintering.

OUTDOOR WINTERING.

Beekeepers in the Northern States and Canada are coming to realize more and more the superiority of outdoor wintering when properly conducted. Bees wintered out in the open in properly protected hives with good stores of pure honey (not sugar syrup) will usually be healthy, strong, and vigorous in spring, which means rapid breeding in early spring and comparative immunity from the ravages of disease, for a normal condition and strong vitality is the best kind of disease prevention. I am a firm believer in the immunity from such diseases as European foul brood, paralysis, spring dwindling, dysentery, and kindred disorders, by maintaining sanitary wintering conditions, with respect to pure food in abundance and suitable protection out in the open.

There are three conditions necessary to successful outdoor wintering; namely, plenty of bees of the right age and condition; plenty of honey, and suitable protection. No attempt should be made to winter a colony of bees out of doors that is light either in bees or stores. The hive should contain at least thirty pounds of honey, and the cluster should be of sufficient size to maintain a normal temperature during severe weather without exhausting their vitality by an abnormal production of heat. Colonies deficient in these respects should be united, and fed up to standard requirements; this should be done before the middle of September, and solid combs of capped honey is the cheapest and best way to feed bees in the autumn. The heat-producing power of a cluster of bees of orthodox proportions enables them to maintain a temperature of 90 degrees in the winter nest in zero weather; hence the correct principle in wintering bees is to contract the wintering-chamber to a capacity barely sufficient to accommodate the bees, and sufficient stores to carry them through in safety. Eight frames is the maximum capacity for best results, and six is nearer correct.

Having contracted the wintering-chamber to the orthodox capacity, the next step is to surround it closely with a thick wall of heat-retaining material such as chaff, planer-shavings, dry sawdust, etc. Two or three inches of such packing is sufficient for the sides; but the top should be protected by at least seven inches of fine dry packing above a thin cover that has been sealed tight by the bees, thus maintaining the regular bee-space above the combs. Said chamber should be of sufficient depth to admit a three-inch space under the combs, and the entrance should be ⅜ inch deep, and six to eight inches long. Moisture will not condense in such a chamber with thin walls; and the deep space under the combs, combined with the wide-open entrance, will conduct it out by diffusion instead of absorption; hence the inner walls will be dry with no upward ventilation to create a draft or allow the heat to escape. The packing material will conserve the heat and give it back to the cluster during a spell of severe weather, hence a comparatively uniform temperature is maintained automatically, and a sudden change in the temperature outside will not be felt by the bees unless of long duration.

The difference of opinion concerning the relative value of sealed covers and absorbents is due to the fact that all do not recognize the importance of a deep space under the combs and wide entrance, both of which are imperative with sealed covers. In all operations with bees, the closer we imitate nature the greater will be our success; and since bees are very careful to stop all upward ventilation at the approach of winter it is the part of wisdom to assist nature by providing thin covers which are easily and economically sealed by the bees, instead of putting them to the extra labor of gumming and propolizing quilts to render them impervious to upward ventilation, which is abhorrent to bee nature. The beehive architecture of to-day is sadly at fault because of inefficiency of wintering service along economical lines. There is no valid reason why every hive should not be a perfect wintering repository with all the advantages just mentioned, positively at present summer-hive prices. The hive that is the embodiment of this principle is already in operation under the appropriate cognomen of the " Sweet Sixteen " convertible hive. It is designed, constructed, and manipulated along strictly economical lines, that actually cut the present cost of honey production in two, and furnish the correct solution of the wintering problem.

CELLAR WINTERING.

The cellar wintering of bees is a subject that I would feign pass by because of the knowledge that much that I say will conflict with the opinion of many who read it. The fact is, I have served my apprenticeship at cellar wintering, and have no further use for it, simply because it is an open violation of nature's laws, and we cannot violate *her* laws with impunity. The penalty for the violation of nature's laws by the compulsory retention of fecal matter during long confinement, often at a temperature at which bees outdoors would void their excrement in a cleansing flight, is usually distended abdomens, and dysentery, followed by paralysis, spring dwindling, and general debility, frequently terminating in European foul brood. Bees love to revel in God's pure air and bright sunshine, hence an enforced confinement for four months in total darkness, often in damp ill-smelling cellars, is not conducive to health, and certainly not to their happiness, as is frequently attested by noisy expostulations and roaring; and many, unable to endure confinement longer under such unnatural conditions, will leave the hives and perish; hence the amount of dead bees on the cellar bottom is frequently out of proportion to the live ones in the hives.

Is it any wonder that it is costing thousands of dollars annually to prevent the spreading of disease? Is it any wonder that fifty per cent of the colonies in the Northern States are not in condition to enter the supers at the beginning of clover bloom? I make no positive statement; but science and common sense agree that a weakened and debilitated organism is very susceptible to disease, either by infection or contagion, while a vigorous constitution and strong vitality are practically immune to disease. Viewing it thus, it is evident that if beekeepers would practice sanitary methods of wintering, and see that their bees are always liberally supplied with healthful food, foul brood and kindred diseases would lose their terrors.

FEEDING SUGAR SYRUP.

Any thing having a direct influence upon the health and vitality of bees has an important bearing upon the wintering problem; hence sugar-syrup feeding is always a timely topic in connection with wintering. The oft-repeated statement that sugar syrup well ripened is the equal of honey, pound for pound, as food for bees, is misleading in several directions. First, it fails to mention the lost vitality of the bees that ripened it, which is greater than many suppose; second, it does not state that a honey-fed colony will usually show fifty per cent more brood early in the season during a dearth of pollen than one of equal strength fed on sugar syrup. Since there is no labor that exhausts the vitality of bees so rapidly as the ripening of thin sugar syrup, it should be fed only as a last resort, and not thinner than two parts of sugar to one of water. Personally I regard solid combs of capped honey as the cheapest and best winter and spring food.

[The fact that honey contains pollen and sugar syrup does not make it necessary perhaps to provide more combs of pollen when sugar syrup is relied upon for winter stores —just how much more we cannot say; but since the pollen in honey is almost microscopic, it would seem that the amount contained in honey could not go far in actually providing food for brood. That it *stimulates* brood-rearing, there is no doubt.

We do not believe that it is any harder on bees to evaporate sugar syrup, especially if thick syrup is fed, than to evaporate natural nectar. Hence, if bees rely on late nectar for stores it seems to us that the evaporation and inversion necessary would be little if any less than if sugar syrup were fed. Certainly thousands of colonies are successfully wintered every year on sugar syrup. See what L. W. Wells says, page 681, of this issue.—ED.]

HIVES BURIED UNDER SNOW AND ICE

BY F. L. POLLOCK

I usually spend the winter in some milder climate than that of Ontario, and the bees are left alone from November to April on their summer stands. They are packed, some one, some four, but mostly two hives to the case, with about four inches of planer-shavings around them, and a chaff cushion and about eight inches of shavings on top. I used to worry considerably about the possibility of the entrances being choked with snow and ice in my absence, but lately it does not trouble me so much.

Some time ago, on coming home in April I found the snow still deep. The six-foot fence at the north of the home apiary was drifted clear over in places. Most of the hives were entirely out of sight; some showed a bit of the roof. On inquiry I found that they had been so during most of the winter, which had been a very hard one, with temperatures of 20 degrees below zero lasting for days at a time. With much foreboding I began to dig around the hives. The picture (next page) shows how they looked after an hours' work. To make it worse, there was a sheet of hard ice about a foot down. This was the result of a heavy thaw and rain in February, followed immediately by severe cold and snow.

I never had better wintering than in those buried hives. Nearly all the colonies were strong. Only two were dead out of forty, and these owed their death to the work of mice, which had chewed up most of the combs. Doubtless the result would not have been so good if I had used sealed tops, but this is a practice quite unknown in Ontario, so far as I can hear.

From careful investigation since, I am of the opinion that entrances are very seldom entirely closed by snow or ice. The radiation from the packing-case, if painted a dark color, and the breath of warm air from the entrance, cause the ice or snow to shrink away from the wood. Often when the entrance appears blocked, a careful examination will show that the snow is nowhere in contact with the wood. Daily it shrinks away a little more, giving quite enough ventilation for very cold weather if absorbents are used over the frames. By March the sun is usually warm enough to clear the entrances of snow; and if not, it may be better for the bees to stay inside until it is warm enough.

Pollock's apiary, run for comb honey in shallow frames.

There were hybrids, Italians, and Carniolans in this yard, and I found that the yellow bees had by far the most dead on the bottom-boards. The hybrids came next, and the Carniolans had by far the lowest death rate. I have observed the same result almost every spring.

COMB HONEY PRODUCED AND SOLD IN SHALLOW FRAMES.

The first picture shows the same yard during a heavy honey-flow. In this yard a good deal of comb honey is produced in shallow, unwired extracting-frames, and sold, frame and all, at 15 cts. per pound. Usually a frame weighs about four pounds, and I find this an extremely popular sort of package for the local trade in comb honey. Twenty-five cents is too much for the ordinary purchaser to pay for a section of honey, if he has good sense. I doubt if many beekeepers would eat much at that price. On our own table a single section lasts hardly long enough to see it, and I should not like to have to supply the demand at 25 cents apiece. It is a certain fact, however, that section honey cannot be profitably produced at a much lower price, in this country at least, considering the number of unfinished and No. 2 sections. By the use of the shallow frames nearly as much comb honey can be secured as of extracted, and they are a good thing for the consumer and the producer alike.

Part of F. L. Pollock's apiary buried under snow in April.

I use either light brood or heavy super foundation in these frames, and do not find any perceptible midrib in either case. As a general thing sectional hives are employed. I get three stories full of brood and bees by the opening of the honey-flow, raise up the top one, and put the super of foundation under it, with an excluder underneath. The bees will start almost at once, and a little sooner if an empty comb is put in as a bait. Such a comb also catches pollen. The upper story or section of brood may be left, and afterward extracted, or it may well be used to make increase in ten days, on the Alexander principle. Two of these sections will make a strong colony for the fall flow.

The scheme of cutting up combs to fit into sections seems to have struck a good many persons simultaneously. It dawned upon me two years ago, and I was convinced that I had hit upon the greatest apicultural discovery of recent years. I did not, however, contemplate putting sealed comb into the sections, but getting the combs about half drawn out in shallow frames first, and then cutting them up. I tried this to a limited extent, and it worked very well. I found no trouble in getting the bees to fasten the half-drawn combs solidly into the sections, and they afterward filled and sealed them perfectly. It is much easier to cut up the combs when about ¼ inch deep on each side, and put them in sections, than it is to put foundation in the same sections; and I did not find any thing to prevent the plan being a success. I did not carry it any further because I discovered that I could sell the shallow frames full of sealed honey about as well without cutting them up at all, and could get nearly as much for them. But where there is no market for comb honey in bulk, I think it would pay to give most of the sections filled with freshly drawn comb instead of foundation, and it is not at all difficult to manage this. If a little honey is in the combs when they are cut up I think it causes the bees to set to work on them more rapidly. I did not have any swarming from colonies that were given section-supers of drawn comb in this way, but there was not much swarming that season anyhow.

Stouffville, Ontario.

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SOLID COMBS OF STORES VERSUS A WINTER NEST

BY J. L. BYER

During the first week of October, 1913, the editor of GLEANINGS wrote to me, asking that I conduct some experiments in outside wintering of bees. I surmised that he wanted me to try out the solid combs of sealed honey in some colonies, and in others to leave them in the orthodox (or at least common) way, viz., the outside combs fairly well filled with honey, while the central combs would have but a rim of two or three inches of honey over the top, and the rest of the combs empty for bees to cluster on in cold weather. However, the notice came too late to have any colonies in the latter condition, as at that time my feeding for the fall was about all done. A number of colonies were fed almost altogether on sugar syrup, while at one yard in particular all were heavy with buckwheat honey. I intended to watch closely during the winter and spring, and report at this time as to which lot wintered the best; but for some reason, despite the fact that we had one of the most severe winters on record, all colonies wintered so uniformly well that there was no room for comparison. Different sizes of entrances were given, varying from one inch in width and a half-inch deep, up to the full width of the hive, and nearly an inch deep. But in this case, again, results were practically the same. Another season might tell an altogether different tale; but, as already stated, wintering was universally good in all the yards, no matter how the bees were packed for winter. I might just add that the colonies given the very small entrances were at the home yard where I could give them attention when needed. An entrance that would be small at an outyard would be suicidal nine times out of ten in our locality, as, after or during a long confinement, such small entrances would get clogged with dead bees.

As I have already intimated, at the time the request came for me to try some experiments in wintering I had already done about all my feeding, so I had no colonies left with narrow rims of honey over the center combs. Let me say right here that, if any had been on hand, I would have first made it clear to the editor that he would have a colony or two of bees to pay for, as, with the severe and lengthy winter that we had, any colonies that had only a rim of a few inches of honey on top of the frames would be pretty sure to perish before spring, especially if the frames were of the regulation Langstroth dimensions.

Two colonies in ten-frame L. hives were selected at the home yard for the purpose of seeing if the bees would *freeze to death* if put into winter quarters outdoors on solid combs of honey with no empty cells to cluster on. No. 18 was a colony of goldens—the only hive of that race in the yard. No. 20 was a strong colony of three-banded Italians. Both were headed by queens from two well-known breeders. The goldens were the only bees to show signs of dysentery during the spring of 1913, and were selected for this experiment because of that weakness. Both colonies had been well fed up during the first week of October before I had heard from the Editor. Nov. 1 the weather turned unusually warm for the time of the year, and I at once placed inverted pails filled with thick sugar syrup over both of the colonies selected. The goldens took down slightly less than 10 pounds, while the other colony appropriated 15 pounds. All combs were white over the top, and burr-combs were built freely. Nov. 23 another warm spell came along and the pails were again placed on hives with warm syrup. This time the goldens took barely half a pound, while the three-banders took five pounds. They seemed to be solid with stores, and took no more syrup as they had no room to store it.

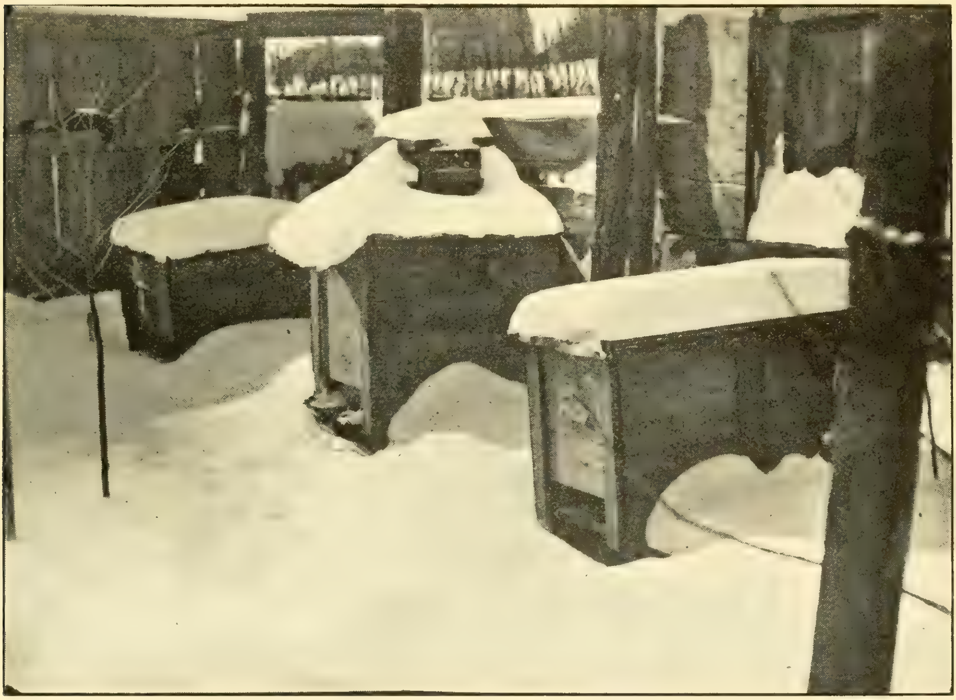
Dec. 3 the weather was again mild, and I placed the pail once more over the three-banders, but they took only a few ounces. It will be seen by these figures that both colonies had ten combs of solid stores during the first week in December, so it will have to be admitted by all that the bees had no time to eat out a clustering-space to accommodate themselves during the cold weather that started in at once and lasted for over four months. The weather was of the normal winter variety with us till Jan. 13, when the thermometer dropped to 30 below zero—an unusual record for our locality. This figure was duplicated a good many times during January and February, and the bees had no flight till late in March.

The goldens showed slight traces of dysentery, but not as much as in the spring of '13. As this colony was the only one showing this weakness in the home apiary two springs in succession, it looks as though some strains, at least, are not as hardy as the darker bees. In fact, that has been my experience at different times when I have wintered goldens outdoors.

The colony of three-banders came through in fine condition; but I, of course, had to take some of their stores from them to make room for the queen to lay during fruit-bloom.

THREE-FRAME NUCLEI WINTERED OUTDOORS ON SOLID COMBS OF HONEY.

At the time I was requested to try these experiments I had four three-frame nuclei in the home yard which I intended to carry into the cellar to winter. I determined to take a chance on them outdoors, and at the same time demonstrate without a doubt that a comparatively small cluster of bees would winter on solid combs. Any one familiar with our latitude knows that it is no certain matter to winter small colonies outside unless the stores are good and *abundant*. Nov. 1 these four colonies were each given three solid frames of honey and syrup—combs of the Quinby dimensions. Placed at one side of a ten-frame hive with a division-board crowding the bees on to the three deep frames, truly that is about as awkward a shape as one could imagine, judging by the common idea that a cluster, to winter well, must be of a spherical shape. But, notwithstanding the fact that we had many days away below zero, and that the bees had no flight till March, each one of these nuclei that were crowded up on the solid frames of honey in November came out in excellent condition, and are to-day among the best colonies in the yard. The two colonies fed solid, as well as these four nuclei, were in packed hives, each hive having two inches of sawdust in front, with three inches at sides and back. Each colony had burlap over the frames, and over all a sawdust cushion about four inches thick; also an air-space above the packing made by a gable roof, and in each end of the roof an inch hole to allow ventilation.



Lewis L. Winship's way of wintering in cases made of drygoods-boxes.

I do not claim any thing of value in these results; but I do claim that the idea that bees *must* have some empty comb to cluster on in order to winter well is fallacious.

A well-known apiarist in New York wrote me in the early spring, saying that a number of nuclei he was trying to winter in the cellar had all perished before spring because the cellar got too cold. Truly, as Heddon once said, " cold is a giant in a cellar," in so far as bees are concerned. I would suggest to my New York friend that this coming winter he snuggle up some of these nuclei on three or four solid combs of good honey or well-ripened syrup, and see if he does not get different results. Judging by my experience, some strains of goldens would not stand this test; but the beekeeper in question does not keep goldens, and his bees are very hardy, like mine; hence the advice I am giving with such confidence.

Feeding solid is not practical, as a general rule, and I do not pretend to say it is even advisable. But I do say that for wintering outdoors in our latitude it is much safer to go to the extreme in the matter of giving lots of stores than it is to feed up colonies in L. hives for the purpose of being sure to leave them empty comb space to cluster on. In preparing for winter the one apiary of eight-frame hives that we have, we feed till they refuse to take any more, during the middle of October. While they may get some empty comb to cluster on by the time severe weather comes it would suit me very nicely if I knew that all were on solid combs as late as November.

With us one of the faults of the eight-frame hive for outdoor wintering is the difficulty of getting in enough stores to last till fruit bloom. We have had bees suffer because of the lack of stores, but never yet because of too many solid combs in late fall.

Mount Joy, Ont., Can.

WINTER CASES MADE OF DRYGOODS BOXES

BY LEWIS L. WINSHIP

I have had the best results in preparing bees for winter by the plan shown in the picture. In the late fall, which comes here in New York along the last of October or first of November, bees should be protected for winter. My method is to get drygoods-boxes, which most storekeepers will give away for the asking, and cut them down until, when placed over a hive, about six inches space will be left on both sides and ends. It should be left open at the top and bottom, although a strip should be nailed on the bottom, around the edges of the box, so that, when it is over the hive, the packing will not slip out on the ground.

When this box is done, a cover should be made out of the box-top to set on the case. When the framework of the cover is made it should be covered with any thing handy, such as tarred paper, a sheet of tin, or galvanized iron. This covering need not be nailed on if a weight of some kind is placed on it.

The packing should be done the latter part of October or first of November. A layer of straw, leaves, excelsior, or planer-shavings should be placed in the six-inch space between the box and hive. The more compactly this space is filled, the better.

When the sides and ends are filled to the top of the hive, a chaff cushion should be placed over the frames, the cover replaced, and the packing material spread evenly over the top of the hive to the top of the box, then the outer cover should be put on, and a heavy stone or brick placed on each corner of the cover.

Bees will winter in these boxes with less loss, and less consumption of honey, than in the ordinary way. These boxes, when made, may be kept from winter to winter, and any one, even if not an expert with tools, can make them with very little work. They keep the bees as warm and dry as they are in the summer.

Springville, N. Y.

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CELLAR WINTERING IN NORTHERN QUEBEC

Wintering with Uniform Success Year After Year

BY H. HARLEY SELWYN

In view of the fact that wintering bees in northern latitudes is an undertaking so often fraught with loss and disappointment, and that for a series of years now, marked success has attended our efforts along this line, it seems to me that a short description of our methods and the cellar in question would be in order for this special issue of GLEANINGS, dealing, as it does, particularly with that topic.

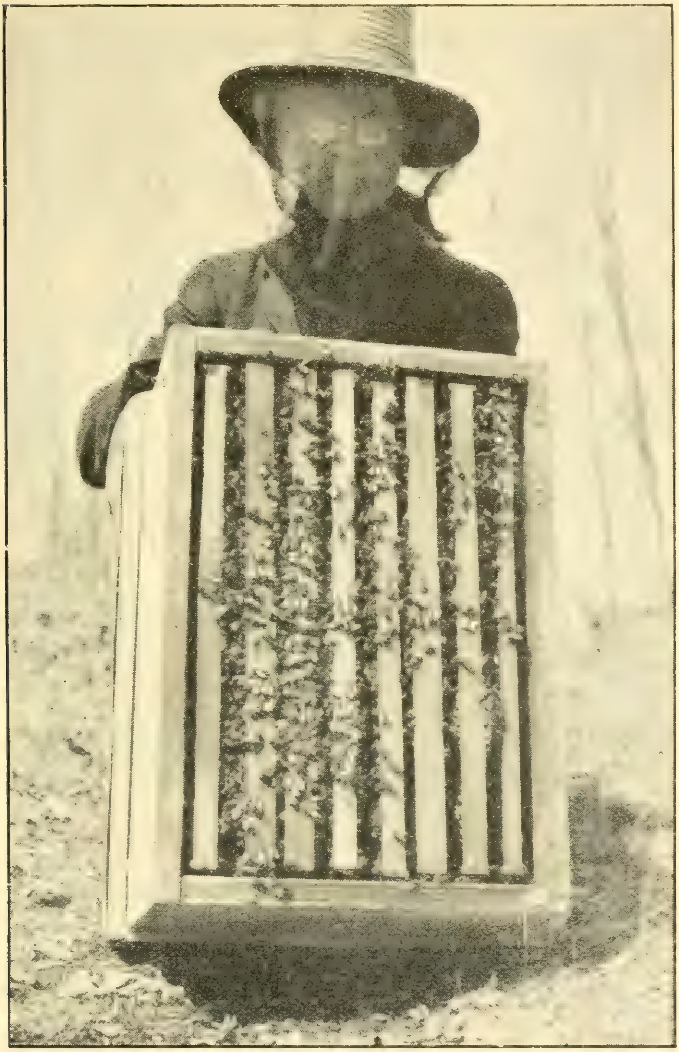
In so far as we are concerned I have not the slightest hesitation in saying that our wintering problem is solved, and that it is now more a question of "Will the clover yield this season?" or "Will the weather be favorable during the basswood flow?" These, it seems to me, are questions where the real doubt and precariousness of beekeeping as a business exist, not in managing to tide colonies over from season to season.

In order to give a fairly comprehensive understanding of our methods of wintering it will be necessary to say a few words in regard to fall management; for as surely as good wintering means a quick spring upbuild, so does proper fall preparation, to a large degree, insure good wintering.

We make it a point to requeen each fall with the best queens it is possible to raise, the reason being readily apparent to those who have watched and contrasted the laying capacity of a young and old queen at this late season of the year. Where an old queen is ready to reduce her work to a minimum a newly mated virgin will revel in her powers of reproduction, and fill the hive with thousands of young workers upon whose longevity the gathering of the honey crop indirectly depends, because it is these bees the following spring whose labors will brood and rear the army of workers for the main flow of the year.

It seems almost unnecessary to dwell long on the question of fall feeding, especially as space is limited, as so much has been said in this regard. Feed wherever colonies seem light, and where you have deprived them of the majority of their surplus. One might as well save himself the trouble of carrying light colonies into winter quarters, as they will surely snuff out before the spring is half reached. Be sure to have each colony so heavy that one has to strive in lifting it. Young queens and plenty of a good quality of honey or sugar syrup, these are the two prime essentials for fall preparation.

In addition to the foregoing points, mention might be made of upward ventilation in the hive, and how this is arranged for, as ventilation of such a nature is, we consider, a factor in successful wintering. Toward the end of September, after the main supply of propolis is cut off, the old quilts used during the season are replaced with new ones. These are made of light-weight canvas or duck, and are impervious to gnawing or tearing, and yet permit of air percolation. By placing them over the hives, next to the frames, a week or two before the time for moving in arrives, the bees fasten them down nicely with remains of propolis, and there is no danger of their being blown or shoved off after the wooden cover is removed. Furthermore, hives with this covering fit up close together and take up less space in a cellar of limited capacity.



One of a hundred similar colonies wintered as described by Mr. Selwyn.

For a description of the cellar a better idea can be obtained from the photographs than from almost any thing I could say. However, the dimensions of the cellar are 16x20 ft., with a 7-ft. wall. The walls and floor are of cement, and the ceiling is plastered, making practically a hermetically sealed chamber—all underground with the exception of the six-inch tile pipe running under ground some 60 feet and rising in the center of the cellar floor. Directly above this is another six-inch ventilator, entering the bee-house proper through the cellar ceiling. The cellar is entered through a porch and double doors.*

The outstanding feature of the cellar, and undoubtedly the one reason why the bees winter with such uniform success year after year, is because of the constancy of the temperature. I have records taken every day all of one winter, and the thermometer remained at 40 degrees Fahrenheit with only the slightest variations the entire time, even though 30 and 40 degrees below zero was recorded many times outside. The air passing through a cowl at the end of the sub-earth ventilator becomes modified and assumes ground temperature. Much moisture or water vapor and carbon dioxide are constantly being given off by the bees, which pass through the porous covers over each cluster and then passes up through the ceiling-vent into the room above. In cold snaps its volume may be judged by the huge stalactite-like masses of hoar frost gathered over the ventilator, and suspended from the ceiling of the honey-house.

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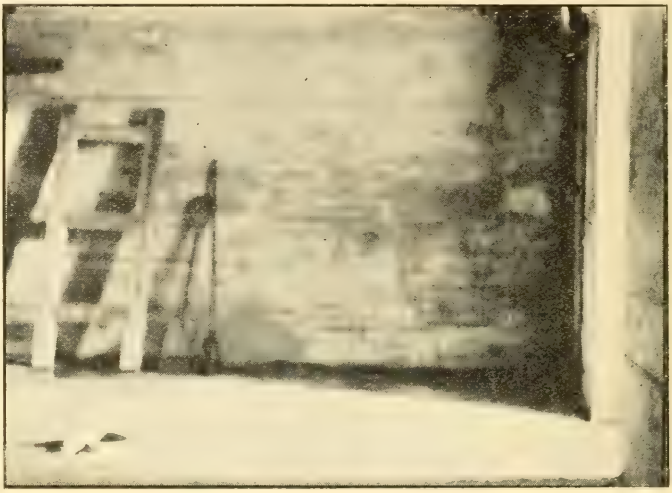
* See cover picture for this issue.

The cellar is situated on a sandy hillside where good natural drainage obtains, and where a graded entrance may be had to the cellar floor, thus facilitating the work of carrying in.

The colonies are arranged on racks of a movable nature, as when one has to pack away upward of 150 colonies in a cellar 16 x 20 feet, and yet leave room to walk between the rows, no space can be wasted. When one rack is full the next is erected, and so on till the four are completed. In the spring the order is reversed; and as one is emptied it is taken down, leaving plenty of room to hustle out the next row.

Entrance to the cellar during the dead of winter is made through a trapdoor in the ceiling, and on a cold and stormy day it is a rather pleasant sensation to pass down into this cosy subterranean den and listen to the murmur of hundreds of thousands of quiescent workers. Each hive is blocked up off its bottom-board, and with a candle it is quite possible to see the individual clusters. A special visit is made to the cellar about three times during the winter to sweep up dead bees, and, incidentally, satisfy our curiosity as to the state of affairs; but otherwise they are practically left entirely alone throughout a period of from five and a half to six months, and with eminently satisfactory results, as the picture of one typical colony taken on April 20 shows.



The interior of Selwyn's cellar, showing the ventilator pipe in the floor, and one of the racks for holding hives. A picture of a part of the apiary and the exterior of the cellar is shown on our cover for this issue.

Kirk's Ferry, Quebec, Can.

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"THE MAN WHO NEVER LOSES BEES IN WINTERING"

How He Does It

BY E. R. ROOT

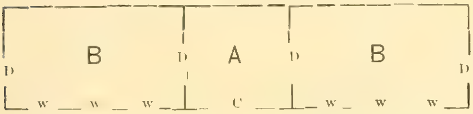
In our issue for May 1 we referred to the fact that Mr. H. R. Boardman, of Collins, Ohio, had for the last 35 years, winter after winter, good, bad, and indifferent, wintered his bees without loss. It will be remembered that, three years ago, our friend still kept up his record in spite of the fact that it was the coldest winter known in thirty years, and in spite of the further fact that large numbers of our best beekeepers lost heavily. Believing that many would like to know something more about this man and his methods we promised that we would tell later on how he does it.

In 1889, when the present editor had been four years in charge of this journal, a good deal had been said about this man who never lost his bees during winter. We had a curiosity to visit him, and did so at the close of the winter of 1888. At that time we secured an extended interview which was published in Gleanings for April, 1889.

The winter repository was a plain building 12 x 50 feet, one story, with double walls 14 inches thick, and, if we remember correctly, the walls were packed. The building was divided into two compartments, each of which was connected with an entryway 10 x 10 in the center of the building. This entryway was placed midway between the two compartments, and entered by one door in the center of the building. Two doors connected each of the two compartments with this entryway. While the building was provided with windows, these were closed with wooden panels so as to make the two bee-rooms absolutely dark.

The following is the ground plan of the building, which was produced at the time, and from this point we reproduce the further description with the interview we had with Mr. Boardman in 1889.

GROUND PLAN OF BUILDING.



A is the entryway; B B the compartments; C the doorway to the entry; and D D, etc., are doors to the compartments B B from each end of the building. W, W, W, etc., are windows, hinged in the middle in such a way that the window can be revolved to a horizontal plane, so as to allow the bees to escape.

As we approached the structure, I said, "I notice that the door is open."

"It has been such an open winter that I have been obliged to lower the temperature by letting in the outside air. Besides there are more colonies in the repository than I should prefer to have for such an open winter as the present one."

"How many colonies have you in there now?"

"I have 70 in one compartment and 100 in the other. In continuous cold weather the 100 would have been about right. But I find that from 75 to 80 colonies in each compartment average best, all things considered. During the past winter the compartment having the 70 did better than the one having the 100. During a severe winter the results might have been reversed."

"I suppose it will not be possible to get a photographic view inside; that is, it will not be advisable to let in sufficient light to enable me to take a picture."

"Oh, yes! I think there will be no trouble;" and so saying he opened the end door at D; and not only that, he opened the three windows so that it was as light as an ordinary room.

"But, aren't you afraid that this light is going to disturb your bees?"

"For the length of time you require, it will do no harm."

Stationing myself at the end door D, I poised the camera and took the view shown below.

As Mr. Boardman has already explained in one of his articles, the bottom-boards are left on their permanent stands, and the hives, as you will notice by the engraving, are piled up in such a way that the bottom of one hive comes directly over the opening between the two below it. Instead of giving full-width entrance, as most beekeepers do who winter in repositories, he gives them the benefit of a large portion of the bottom of the hive. To the stronger colonies he gives more bottom space; to the weaker he gives less. On the average there is an opening at the bottom of each hive, 4 inches wide, and the full length or width of the hive. He does not then give them the full bottom, as I had formerly supposed, and as perhaps some of the rest of the readers likewise understood.

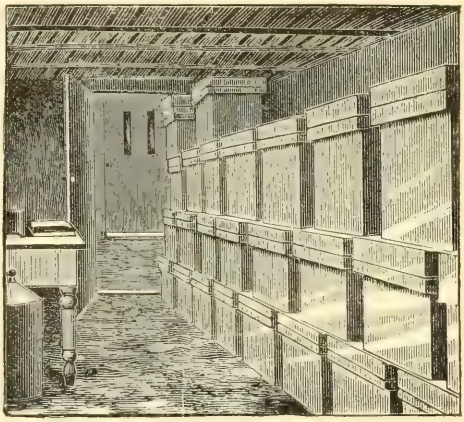
You will notice that friend Boardman dispenses with all stringers, shelving, or any other support to hold the colonies in the repository. They are simply piled up about 4 inches apart, one upon the other, break-joint fashion.

"Now, then, friend Boardman, Mr. Newman said he did not see how you could carry hives about without bottom-boards, and yet not have the bees dropping out and flying out to make the job any thing but pleasant; and, what is more, I do not see how you do it myself."

"Why, easy enough," said my friend. Going to one of the hives (they are cleated clear around at the top, you will notice, the cover resting telescopic fashion on this cleat) he grasped its diagonally opposite corners. Leaning backward a little he let the edge of the hive bear against his person, carried the hive to the other end of the repository, set it down, took it up, and put it back. He did likewise with a number of other colonies. Each one he held up, turning it up so that I could see for myself the condition of the bees, and how they apparently regarded such kind of handling. While it looked real easy I could not be content until I tried it too.

"To prevent the bees flying out when about to remove them to their winter quarters, I am particular," he said, "not to jar the hive unnecessarily, and then I prefer to have the weather just cool enough at the time so that the bees cluster a little closer than usual.

"You see," he continued, "I letter each row in the apiary, and number each individual stand. Now, when I get ready to carry the bees out I take the first hive I come to, which, in this case, proves to be F 18. Of course I know where the row F is; and 18 I know to be somewhere about the middle of the row; and with the hive in this fashion" (holding it in the manner before explained), "I take a bee-line to the bottom-board having the same marking as the hive."



An inside view of Boardman's winter repository, showing front row of hives.

"But," I said, "do you think it makes any great difference as to where the colonies are put?"

"Not much, but it does some; and if I can deposit each colony where it was last fall, just as easily as not, I very much prefer to do so rather than to set them out haphazard. There is then no confusion among the bees when they take their first flight; for some old bees will be sure to know where their old stand used to be."

"I want to know what sort of a cover you put over the frames in winter."

"All the bees have is the regular hive-cover, and this they usually glue down tight; that is, I put the bees into the repository just as I find them on their summer stands, after I have satisfied myself as to their strength and amount of stores."

Now, perhaps some of our readers will begin to wonder whether those bees, during all this time when the repository was lighted as light as any ordinary room, did not become more or less disturbed, and fly out. I expected to see them fly out a great deal more than they did; but only here and there a bee would start out from its hive, and strike for outdoors. Then I said to Mr. Boardman, "You would not like to leave this compartment lighted up like this all day, would you?"

"No, sir; but for a short time it does no particular harm. The few bees that fly out are old ones, rather feeble, and are not of much use to the colony. My colonies have been rearing brood quite heavily, and there is a large force of younger bees to take their place."

Glancing down to the floor (concrete cement) I noticed there were a good many dead bees. In some places, perhaps they were an inch or so deep.

"Now, it seems to me you have got a good many more dead bees as the result of your indoor wintering than we have from our chaff hives, on their summer stands."

"Yes; but," said he, "I think you will find that the bees fly out from the chaff hives in the same way. These, never returning, are lost sight of, and of course do not figure very largely in the eyes of the beekeeper, on the death-list."

While I admitted this, it did seem to me there were more, perhaps, than we usually lose in that way on summer stands. I say "seem," because I am not sure about this.

The dinner-hour approaching, Mr. Boardman closed up the windows, darkened them, and closed all openings except the door to the entryway A, shown in the diagram above. As we stood before the building I said to Mr. Boardman, "It is not yet quite clear in my mind whether you open that door to give ventilation or to lower the temperature, or to do both."

"Bottom ventilation to the *hive* is all that I regard as important. I open the door simply to lower the temperature of the repository."

"But," I said, "don't you have a sub-earth ventilator of some kind to the building?"

"I do not see what need I have of one. As I only want to lower the temperature, I can do it by a door or window a little better, perhaps, than to let the air become warmed under ground a little before entering the compartment."

As we were entering the house, I told Mr. Boardman that I should like to take the noon train.

"Oh, no!" said my host. "You had better take the evening train."

Having enjoyed my visit so far, it did not take very much persuasion on his part and that of his good wife to induce me to remain over a little longer. Besides, as he had promised that he would take me out to his out-apiaries I did not feel like resisting very hard. After dinner we went out to the barn, where Mr. Boardman had three horses, one of them being a family horse, and the other two devoted exclusively to the bees, in going to and from the out-apiaries. Very soon we were on our way, on a brisk trot, to one of his east apiaries. After going about a mile and a half we came to a piece of land belonging to Mr. Boardman. An old schoolhouse on this plot of ground had been converted into a winter repository. Like the one at home, it was an up-ground structure. The walls were 14 inches thick, and frost-proof. This building had only one compartment, which communicated with an entryway, and the latter to the outside. My friend then brought something like a dozen colonies, selected at random, out to the light, for my inspection. They were all in most excellent condition, and the weak ones seemed to be doing about as well as the strong ones. As before, I noticed dead bees on the floor, but not to the extent that they seemed to be in the winter repository at home. After closing the building we started for an out-apiary some two or three miles further east. Of course, we talked all the way. I asked him if he preferred up-ground repositories rather than a good cellar.

"I prefer them simply as a matter of convenience," he said, "in carrying bees in and out. I do not know that the bees will winter any better in one than in the other. We are now going to one of my bee-cellars under a farmhouse, where I think you will find the bees wintering as well as in either of the other repositories."

In a short time we arrived at the place in question.

"This cellar," said Mr. Boardman, as he opened the door, "is one that I partitioned off."

As before, Mr. Boardman and I examined the colonies at random, and found them to be in good condition.

"Now," said he, "here is one colony that I put in by way of experiment. I do not know how they will winter. It was very weak, and I thought I would put it in just to see how they would winter."

Turning the hive up we could detect no signs of life. He set the hive down again and lifted up the cover, and, lo! every thing was as still as death. When I came to examine the size of the colony I was not very much surprised myself. There could not have been very many more than 200 bees, even at the outside, in the cluster; but the evidence seemed to point to the fact that they had only just died.

"Ordinarily," said my friend, "we unite such weak ones; but as a general thing we can winter weak colonies—that is, if not too weak—as well as we can strong ones." After putting the hive back in its place, he continued, "You will notice the cellar is very dry. Some beekeepers claim that they could winter bees in a cellar 'reeking with dampness,' if only the *food* were right. I am not so particular about the food, but I am particular about a dry warm place."

All of Mr. Boardman's bees, as he subsequently told me, were wintered on whatever stores they happened to have in their hives. If the food is well ripened, the colony not too weak, and the cellar dry and warm, he does not worry very much over probabilities. While he can and has wintered bees on honey-dew he prefers the nectar of flowers. As we stepped out of the repository Mr. Boardman said, "Here at this apiary I employed an inexperienced boy. I should have had more money in my pocket had I paid him the wages I did and had him stay at home. He made enough muss and trouble to more than offset all the good he did."

Mr. Boardman prefers a man grown—one with sufficient maturity of judgment to do what he is told to do.

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REBELLION

BY GRACE ALLEN

Nay, nay! poor bee, why do you sting me?
Why in fury do you fling me
All the poison and the passion due a cruel and hated foe?

I think—I think, my little bee,
If you could dream, if you could see
The kindness at the heart of me,
You would not strike me so.

Perhaps I too have struck out blindly
When a large Hand, moving kindly,
Has laid along my little life an aim I could not know—

Great ends that God and life had planned,
Too great for me to understand;
I wish now I had loved the Hand
That bent so near and low.

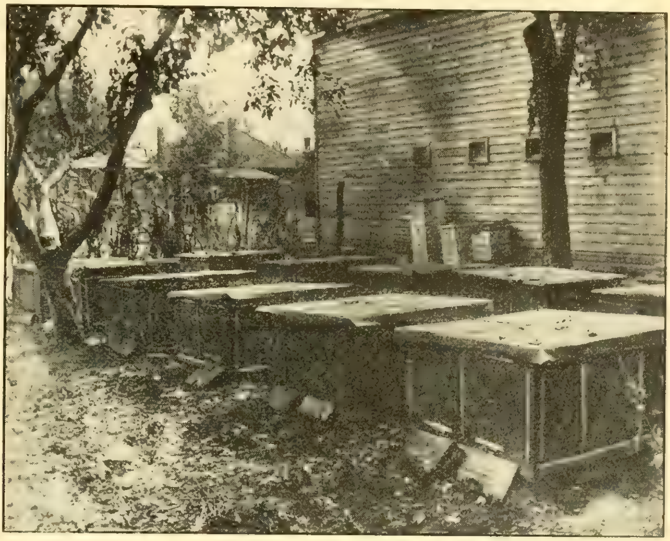
A CITY BEEKEEPER WHO PACKS FOUR HIVES IN A WINTER CASE

BY CHAS. BOWDEN

You ask in your editorial, page 665, Oct. 1, "Are there any city beekeepers who can beat the record of Mr. Geo. Gautner?" As I might modestly claim to have done so I take the liberty of sending the enclosed view of the little apiary under the apple-tree. The colonies are packed for the winter in "fours." The cases were put on the last of September.

I got 6500 lbs. of honey from 27 colonies, spring count, last year, counting gross weight in 5 and 10 lb. pails—also enough to winter them without feeding.

The best previous average was 55 lbs. I attribute the increase, first, to the excellent year; then to the fine Italian stock I have; and then to the method of wintering. I did not take off the winter packing till just before the clover. They built up early and strong, and I had a hard time keeping down the swarming. I had six that swarmed in spite of all. No. 23 swarmed and got away, as did an after-swarm. It must have been the number.



Chas. Bowden's apiary packed, four hives in a case, for winter.

The apiary is about five minutes' walk from the market in a city of about 25,000 people; but it is well isolated at the back of the lot. On each side there is a large barn, at the back a stream, and a patch of tall corn in front. The neighbors are very seldom if ever bothered. A good neighbor was stung once, but she didn't mind it much.

There is a large amount of willow at the back from which the bees get very early pollen and nectar. They get the pollen from a yellow willow, and nectar from a greenish kind. It's a treat to listen to the bees working for nectar before the leaves are well out in other trees.

I increased to 44 colonies by taking the sealed brood from two hives and introducing a laying queen. This was done the first part of August, 1913, after the white clover, and I secured good rousing colonies by winter.

I made a steam-heated honey-knife last year in my spare time. It worked like a charm. I used a 10-lb. honey-pail, with a nipple soldered on the lid, for a boiler, and a yard of nursing-bottle rubber tube to convey the steam to the knife. It seemed as light as the regular knife, and worked twice as well.

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SUGAR SYRUP VERSUS HONEY FOR STORES

BY L. W. WELLS, SR.

I supposed that this question of feeding sugar syrup had been thrashed out by Dr. Miller, Mr. Byer, and others, to the satisfaction of all concerned; but after reading J. E. Hand's article, page 858, Dec. 1, 1913, I am compelled to add my mite to the discussion. The past three years of my life have been spent in the study of the bee and every thing that affects its life. Oregon has given me rare opportunity to study some things that do not usually accrue to the beekeeper who has a fairly steady honey-flow and a sufficient amount to insure plenty of winter supplies at all times.

I am one who believes that a pound of sealed sugar syrup is the equal of any pound of honey that was ever stored for any purpose for which a bee ever uses honey. Queens raised on this syrup, and fresh pollen, have so far given a better life-average, are nearer all perfect queens, than any I have been able to raise on stores gathered from flowers, while the workers thus raised are hardy, and can stand spring grief to the equal of any worker ever raised.

There is a great difference in the way the work is put up to man or bee as to whether the result is profitable or not. Now, in the case cited by Mr. Hand, where 8 or 10 parts of water was used to one of sugar, and fed in the open, I cannot conceive of a more disastrous condition imposed on bees than to be tempted to convert this slop into a suitable food. I will try to give a parallel case with man instead of the bee, from which we can draw the same lesson. Bread is the staff of life with man, composed largely of flour, a little yeast, salt, and a reasonable proportion of water to make a stiff dough to which the right amount of heat is applied in the right way, and the result is a wholesome food. But suppose we have the same ingredients except that we increase the water to 8 or 10 parts to one of the other ingredients, and apply the same amount of heat, and try to keep life in a man for the period of three months with the resulting compound, or expect him to be the equal in strength of the bread-fed man, and, further, expect him to labor as the equal of the man normally fed. It sometimes appears that we expect unreasonable things of our bees—things that we could not or would not do if we were a bee.

Then our friend has overlooked the "bet" again when he holds up the " inversion " of the syrup as weakening to the bee, and carries the idea in his article that the nectar of flowers is not inverted, or that this kind of work weakens the vitality of the bee in the one case and not the other. I believe that the nectar requires just as much albumen when gathered from flowers to invert as in the case of sugar syrup; and in the case of candy made from sugar there can be no difference. Then why should this operation be so debilitating to the bee if done in the most economical manner? I take a common black iron bread-pan that will hold at least half that I wish to feed to a colony, an empty super, two sticks ¼ inch thick. Going to the hive I take off the top, put on the super, lay the sticks across the frames, set my pan close to one side, pour in syrup till the pan is full, and cover the top of syrup with a thin wooden float. Then 48 hours later a normal colony will be ready for the last half, which will probably require five or six days to store, as finishing and sealing of the cells takes more time than the first simple storing. Two weeks later this will all be capped in a normal condition. The syrup used is from the best cane sugar, in parts of about 2½ of sugar to one of water. A straight-sided vessel should show a little more finished syrup than there was bulk sugar before mixing. The consistency of the syrup is very important; for as soon as one gets the syrup where it will not congeal into a coating of hard candy on top when allowed to stand for an hour or two, the bees will store and seal it immediately; while if too thick they find the transfer a slow process.

Then if we should use honey thinned, as our friend thinned his syrup, would not that be just as debilitating to the bee, and just as disappointing?

Then, again, life provides as the acme of its predestination in the species, that, in the cycle of the generations, they perpetuate their race in the highest possible manner and degree, and then pass from the stage of action to be succeeded by their progeny. It is a well-known fact that, the busier their life, the nearer perfection they reach, and bees are no exception to this law.

With rare exceptions I know of no reason for feeding bees but the want of stores; and where there is a fall flow in August and September there is seldom need; but where there is not such flow, is where it taxes all the resources and knowledge of the apiarist to put his bees in condition for profitable wintering and a honey crop next year. Bees raised in July and August have a very short working life, possibly 30 days, being raised under congested conditions, while from September on they have a working life of 54 days' average. Under such conditions, if there is no fall flow, and colonies breed freely during July and August, and fill the hive with bees, they exhaust the stores and do not breed in September, but prolong their life by going into the comatose condition that enables them to prolong their life until the first part of the ensuing year, and no doubt many of them thus live until they are taken out of the cellar, when thus wintered, only to furnish victims for spring dwindling; while on the other hand the colony that filled the hive with stores and reduced the brood-nest at the close of the honey-flow will have sufficient brood-nest by September to raise a populous colony of long-lived bees, and plenty of stores to winter them still on hand. I can find no more profitable way to handle the first-mentioned class than to give them, the first of September, 25 pounds of cane sugar in the manner

I have described, and force them to use up their vitality so they will die by November 1, and not go into the winter cluster, as they form nine-tenths of the bees that straggle out on the combs to freeze and winter-kill. They are always restless and looking for trouble. I further find that brood-rearing exhausts these bees faster at this time than the transfer of stores; and the feeding at this time will always lead to the rearing of brood sufficient to winter in the best of condition for spring work, and we have used the profitless bee to the best advantage, for we have made them fill the home with stores prepared for winter, raise a new generation to meet the rigors of the coming spring work in the prime of life, otherwise they would be useless consumers of stores, to die just when most needed. We find bees that use the syrup take fewer cleansing flights to maintain their health than when they use natural stores.

Since reading Mr. Hand's article we have induced a colony of golden Italians to store 20 pounds of sugar in seven days during weather so wet they could not fly, and that without the loss of a dozen bees; and we are going to watch the effect, though we are not worrying about their dying.

Grant's Pass, Ore., Dec. 26, 1913.

WINTERING IN AUSTRALIA

The Value of Packing and of a Sheltered Location

BY MAJOR SHALLARD

I had occasion in October, 1913, to visit some of my out-apiaries to examine the colonies and see how they had come through the winter. I never before saw such a striking instance of the value of packing bees down warm for the winter. It is, of course, customary for the apiarists of the Northern States to give all sorts of protection for winter; but it is not in Australia, and I think I could safely say that most of the bees are left on the winter stands in much the same state they were in all through the season. The locality where these farms are is the western district of New South Wales. The temperature falls to the freezing-point, and sometimes below, and there are occasional falls of snow; but some winters there is none at all. The cold wind (that is, the damaging winter winds) come from the west. I am mentioning these details to explain what winter conditions and drawbacks the bees had to combat. All the bees in this district had suffered during the previous season from a pretty severe attack of "nosema apis," or, as it is generally known, "bee paralysis," and they had gone into winter quarters weak, although some apiaries were stronger than others.

The first two apiaries visited were two miles apart, and consisted of thirty or forty hives respectively. These had gone into winter quarters weak, having about two frames of brood, and were short of stores. They were fed half a ton of honey, which was only about half what they should have had; but it was decided to chance it. They were packed, but only on the top, with two thicknesses of corn-sack, thirty thicknesses of newspaper, a sheet of tin, a flat board top, one inch thick, and a stone on top to keep all in position.

The thirty-hive lot opened up in fine condition with the exception of one hive which had a queen and only about fifty bees left. The rest would average about three frames of brood; and, although they had eaten all of their winter stores, they all had plenty of new honey in the combs, and some of them were just beginning to cap a little of it. It was very pleasing to have them open up in so much better order than was expected.

A visit was next paid to the forty-hive lot. These, although packed just the same as the others, were in nothing like such good order. They were breeding well, although not so forward as the first lot, but they were literally living from hand to month, having hardly an ounce of surplus honey in any of the hives.

I commenced to look around for the cause of this, and concluded it was because they were in a position where they got a lot of strong winds from which they had no protection. They are being moved to a more sheltered position, and, no doubt, will do better.

Some eight miles away was another apiary of eighty hives. These had been in such good condition that they were left with the top boxes on, and not packed at all. They had plenty of honey on going into winter quarters, and a fair amount of brood and bees. They were opened up through the winter, and found to be out of stores, and they were fed forty tins of honey. On being opened in the spring they were found to be in very bad order. The first four opened had died out, and the rest were weak with an occasional strong one which was doing very well.

The next apiary visited was some six miles further on, and the last one a few miles further away. They were carefully packed for winter the same as the first two. The first one opened up well. The bees were breeding well, and getting plenty of honey to go on with. The last one did not come out at all well. About one-third were dead, one-third alive, but very weak, and the rest with about two frames of brood, though they all had plenty of honey. Even those which had died out had left honey behind. This was a bit of knockout, and set me to thinking why they should do so badly when the other farms only a few miles off, and under the same conditions, did so well. I found the cause of it, or thought I did, in the exposed position. The bees were on a slope facing toward the west, and they had been meeting the cold westerly winds all winter. The hives which did best were those which had been protected by bushes growing on the westward side of them, and the ones which had died out had had no such protection at all. It was decided to move them on to the easterly slope of the hill, and no doubt in that position they will do as well as the others.

The lesson from the whole thing is this: 1. That it paid well in actual cash to pack the bees; 2. That if the weaker colonies had not been packed they would all have died out, and that, through not packing the eighty-hive farm, nearly forty pounds' worth of honey was used which could have been saved if the bees on that particular farm had been packed the same as the others. The condition of the various farms also showed the utility, in fact, the absolute necessity, of sheltering the hives from strong winds, either by giving artificial shelter or taking advantage of growing bushes.

New South Wales, Australia.

THE WINTER CASE IS WORTH TWO DOLLARS PER YEAR

BY E. G. CARR

A visit to Mr. C. H. Root's yards, near Red Bank, in winter, is likely to make the average New Jersey beekeeper think Mr. Root had not learned that winter packing is unnecessary in such a fairly well-sheltered location, as has been selected for the yards; but he has no trouble in wintering bees without packing, as the term "wintering" is commonly used. His wintering arrangement is not like any thing I have seen before, and deserves particular notice. The preservation of the bees through the winter is not the only object of the winter case—in fact, it is, perhaps, the smallest item in mind in using this case. Bees are not kept by Mr. Root for the fun of the thing, but for the amount of honey he can get from them—nothing else.

By the use of this winter case the bees winter on an average of ten pounds of honey per hive less than is required by the bees in the unprotected hive. Because of this protection, brood-rearing is exceedingly rapid in the spring, so that the bees take advantage of all early honeys before the main flow, which is from alsike clover. Mr. Root figures the extra profit from the use of this case at $2.00 per colony each year.

The wintering is such that at one yard of over 20 colonies last year there were not more than a pint of dead bees all told in front of the 20 hives in the spring.

This winter case is a double-walled box with two-inch space between the outer and inner wall, which is filled with ground cork. The cork is used because it can be obtained easily, but other packing would probably be equally effective. No packing at all would be used if the space could be kept perfectly air-tight; but since this is impossible the packing is thought to be necessary. The packing space is entirely enclosed so there is no danger of spilling the packing.

The case is of such size as to telescope readily over the regular hive-body with the hand-hole cleats left off. This rests on a double hive-stand packed with leaves. The hive-stand rests on four stakes driven into the ground projecting about two inches.

On the hive-stand is the bottom-board with 3/8-inch rim, and the entrance is contracted to 1/4 x 8 inches for winter. On the brood-chamber is placed a half-inch inner cover, and over all is a six-inch-deep telescope cover filled with leaves held in by burlap cleated around the sides so that this cover telescopes down over the outer case about one inch. This cover is made of wood, and roofed with paroid roofing. Mr. Root's experience with wood convinced him that it alone cannot be made satisfactory as a roof.

If for any reason the bees are to be examined before time for removing the outer case, it can be readily done with no trouble from loose packing.

New Egypt, N. J.

INTRODUCING QUEENS BY THE WATER METHOD

Sprinkling the Queen and the Bees on Combs with Warm Water

BY T. DWIGHT WHITMAN

A good deal has been said of late in your magazine about the smoke method of introducing queens. For one who is satisfied to work by guess in the dark it is all right; but for my part I want to see what I am doing, and be able to take any queen, either virgin or mated, right from the mails and see her on the frames surrounded with the bees before I close the hive.

"But how are you going to do it?" you say. I have done it often with not a failure except once when, after closing up the hive, I did not leave it alone for at least three days; and when I opened it to see if the queen was laying she was frightened, and ran and squealed, and the bees promptly balled her.

"Well, but how?" All right. We will suppose that I am going to introduce a queen that I have just received through the mails. If I wish to save the queen in the hive in which I intend to introduce the new queen I provide two Miller cages, one for each queen. I have my hive-tool, a lighted smoker, and a dish of warm water and a plant-sprayer; or, in place of that, a whisk broom or bunch of weeds or simply my hand.

Taking the mailing-cage into the house I open it by a window, cage the new queen in one of the Miller cages (which must be without any feed in it), and put her in my pocket so that she will not get chilled. I go to the hive in which I am going to introduce her, and proceed leisurely to find the old queen. When I find her I put her in the other Miller cage with some attendants, and feed if I am going to keep her in it; otherwise without feed if I am going to introduce her in another hive, or simply lay her on top of the frames in her own or another hive without feed or attendants, and let the bees take care of her until I want her.

The old queen being out of the hive it is now ready for the new one which has been in my pocket for from twenty to thirty minutes, and is beginning to get hungry. I pick out a frame of brood that has some open cells of honey near the top of the frame, and arrange to place it in the center of the hive. If the hive is a strong one with lots of bees I start at the outside frame and sprinkle it with the warm (not hot) water on both sides, and do this with all of the frames, reserving the frame I have selected to go in the center of the hive, and on which I propose to place the new queen until the last. Then, wetting that, I take the queen in the Miller cage out of my pocket and dip the queen, cage and all, under the water a couple of times so as to wet the queen's wings so that she cannot fly. She is then in the same condition as the other bees in the hive. Then drawing the plug I hold the cage up against the frame of brood so that the open end is near some of the open cells of honey. The queen soon climbs out on the frame, and, being hungry, at once sticks her head in one of the open cells and goes to feeding, a space having been cleared for her with a puff of smoke. As the other bees gradually close around her they are so busy thinking about drying themselves that they pay no attention to the new queen. I gently lower this frame in place from its former diagonal position in the hive, close the hive after sprinkling a little more water where I last saw the queen, and the job is done.

I do not disturb the hive for at least three days, or, better still, a week. I can tell from the actions of the bees or by examining the ground outside the hive that the probability is that every thing is all right.

Now, this plan has every advantage that the smoke method has. The queen is introduced without attendants, so there is no risk of disease. There is no lost time, no appliances to buy; moreover, you can do it at any time and see what you are doing.

The amount of water to be used depends on the strength of the hive. With a strong hive where the bees are inclined to be cross I give them a good deal, but usually not more than a sprinkle on each frame is required.

As water will quiet the bees as well as if not better than smoke in most cases, you can in a pinch get along without using any smoke at all, which is sometimes an advantage in the case of replacing a black queen, or when, after a search, you cannot find the old queen by using a queen-excluder and an extra body, and you have taken a couple of frames of brood from the hive that you are sure the old queen is not on, and placed them in the extra body over the queen-excluder on top of the old hive and filled up the rest of the extra body with spare frames, you can introduce your new queen in the same way and hunt up the old queen in the lower body at your leisure.

This method meets all the requirements,

The new queen, being hungry, goes right to feeding, and at once acquires the colony odor; at least, the bees do not seem to know that she is a stranger, because the hive is put out of normal, and they have their hands so full in drying themselves and the hive that, by the time that is done, the new queen is settled down. Even when first introduced the bees show no inclination to ball her, and the queen is thinking more about getting something to eat than she is of running or squealing, so the bees are more inclined to accept her.

Give this method a trial, and you will have no more use for the smoke method.

Tacoma, Wash.

SOME DIFFERENCES IN LOCALITIES

BY GEORGE W. LOUDER

I noticed what George M. Huntingdon says, p. 215, March 15, also Dr. Miller's answer, p. 244, April 1, which does not answer. The winter of 1903 I was with one of the Somerford boys in Cuba. Down there the weather is cool at night (was cool part of the time in daytime too—weather reports said coolest for 25 years), and flow comparatively light early. Under these conditions we had to extract for the brood-chambers of all colonies, super or no super, or the colonies would have been down to a handful of bees by the time the flow got heavy. In many colonies there would be brood in two or three combs in the center of the brood-nest, and then only a circle five to six inches across in each comb. The rest were jammed full of honey with comb-honey supers or extracted-honey supers on, it made no difference. The last part of the season we did little or no extracting from the brood-nests. As the weather became more settled and the flow stronger, and brood-nests more expanded, the bees showed less inclination to exclude brood with honey.

I have kept bees in two locations in southeastern Pennsylvania, and am satisfied that the let-alone plan (except in cases of lack of stores) is best there.

In your reply to Mr. Huntingdon you speak apologetically of the use of the word "locality." You need offer no apologies for the word. Location makes all the difference in management. I see Dr. Miller, p. 311, April 15, says the flow began June 6, and closed about Sept. 20. His surplus is, if I understand rightly, from white clover. In the two locations I had in Pennsylvania, covering about ten years, the clover flow lasted from June 1 generally up to July 4, sometimes until the 15th. We used to say, "When the farmers cut their hay the honey-flow is over."

In Chester Co. we had sufficient nectar from sumac to enable the bees to finish partly filled sections if looked over in time. In Montgomery Co. there was no sumac near me, but sweet clover enough for the same purpose. Some years, with a little flow from Spanish needle, there is enough to keep brood-rearing up, and get some baits drawn in supers, but seldom any surplus. Both places gave sufficient fall flow from asters, etc., to fill up the hives in good shape for winter. Last summer, while on a visit up there, the bees were storing in August—a very unusual thing. Here in South Delaware we have a flow generally in August and September, and usually some surplus is gathered. These few facts will be enough to let the word " locality " out.

THE INCOME OF A BEEKEEPER.

Mr. A. C. Miller says a man able to manage a commercial yard and market the product should be able to earn at least $5.00 per day in any one of several different lines.

All of us will agree that the beekeeping fraternity are, taken as a whole, as wide-awake and up to date as any branch of rural workers; but I am here to tell you that the $5.00-per-day men in their ranks, if the capital invested in the bee outfit were suddently to be lost, and they were forced into other work aside from bees, are not so very numerous. Mr. Miller does not say in what line they could capture that $5.00; and for my part I don't know. I know there are some old timers who run large numbers of colonies and sell the output at some price who cannot write a correctly spelled or grammatically correct letter. Of course, some are good salesmen naturally, but without training save for the little honey-selling a few weeks in the fall, and there are salesmen in many lines who do not get $30 per week.

Frank Somerford made from $125 to $200 per month in the detective business in Cuba before he had bees enough to keep him busy. He was an unusually bright, well-informed, well-educated young man, holding at that time a first-grade teacher's certificate in Texas, and having had experience as a bank clerk. He was also familiar with Spanish. I have met a good many beekeepers, and would say that, where one would measure up to Somerford in education and ability, five would not. I guess there are more $1.50 than $5.00 men. The editor speaks of a large producer who says he can get all the men he wants at $1.50 per day. Well, let some misfortune take from him his bees, and let him enter another line where the other man furnished the brains, where would he be but in the $1.50 class?

BEES CARRYING SAWDUST FOR POLLEN.

They have been nosing around on the chips at the woodpile all spring, and to-day I saw quite a number flying excitedly around some heavy oak sticks four or five inches across, and six to eight feet long. You don't suppose they will feed them to their brood, do you? May there not be some acid or juice in wood that they need?

Georgetown, Del.

BEES WINTERED ON CANDY ALONE

BY O. S. REXFORD

Last fall I promised to take away all honey from a colony in order to winter, or at least try to winter, with the Miller candy only. Accordingly, November 12, I put bees from one colony on frames entirely empty—no pollen nor honey. Over the frames, so that the bees could get it readily, I put 15 lbs. of the candy, packed them up, and left them for the winter.

About April 1 I examined the bees, found them in good condition, brood started, and what appeared to be liquid honey in the cells near the brood. At this time I gave them one frame containing pollen but no honey. There was about 5 lbs. of the candy, which seemed dry and hard.

I did not go to the hive again for about ten days, and then I found the bees had absconded—no dead bees, hive clean and dry, and four or five pounds of the candy.

When I decided to experiment with candy feeding I asked a friend and expert beekeeper, Mr. S. E. Bunnell, President of the Connecticut Beekeepers' Association, to try also the candy feeding, and I send his report with this.

REPORT OF S. E. BUNNELL ON FEEDING MILLER CANDY FOR WINTERING BEES.

November 18 I took all honey from colony No. 10; gave them 26 pounds of candy. November 18 I gave colony No. 11, which was short of stores, 13 lbs. of candy. March 8 I examined my bees; found both colonies in good condition. No. 10 seemed in extra good shape.

April 10, a warm day, I took out frames of No. 10; found them strong in bees, very few having died; three frames of brood, liquid honey above the brood; about 5 lbs. of very hard candy.

At this time I gave them honey in two or three frames, about 8 lbs. in all; also one empty comb filled with rye flour.

Colony No. 11 was also in good condition.

From this time on, both colonies remained as good in every way as the average in my yard. But this is not saying much so far as section honey is concerned.

My average at this time is only about 20 lbs. per colony.

April 12, 1914. S. E. BUNNELL.

Winsted, Ct.

THE HARD CANDY MELTED AND RAN DOWN THE COMBS

BY F. J. LEE

To make hard candy for winter stores, I think the beekeeper must be a professional candy-maker as well as beekeeper in order to make a success of it. I saw the recipe in GLEANINGS, and as I had seven colonies that I knew were light in stores I got my wife to help me. We put on a kettle of sugar and water, and some strained honey. We boiled it until it would get hard in cold water. Then when we poured it out it was a nice amber color. We filled up the kettle again as before, and boiled and boiled. As I thought the first batch was not hard enough we emptied it back into the kettle and boiled it some more. It had the nice amber color; so that much, I knew, was right; but the second batch I thought was not hard enough, so we put it back in the kettle and cooked it until bedtime Saturday night, when it was put out in the summer kitchen to cool and harden.

Monday morning I broke it up and put it on top of the frames of seven hives. I slept well every night for a week, thinking my bees were enjoying their nice amber-colored candy. A neighbor who has a few hives in my cellar came in, and I told him about the nice amber-colored candy I had made for my bees, and invited him down to see the grooves they would have cut in it by that time. I lit the gas, took off a cover, and, lo and behold! the candy was gone, amber color and all. I had put clean bottom-boards under them, and you would be surprised to see the number of bees that went down with the candy.

In the next issue I saw a picture showing how a man wintered bees on loaf sugar. I went to the village and bought all the loaf sugar the store had—25 lbs. I thought the bees could not get their feet tangled with that, as it was very hard and coarse. I got the kettle out again and put half a gallon of extracted honey in it. I heated it hot, put in some of the loaf sugar, stirred it around, then skimmed it out to drain, but it did not drain. What honey was on it went into the hives. It seems to me it will make an excellent bee-feed. However, if it does not feed them it will not kill them.

Lee Valley, Ont., Can.

SUNDRY ITEMS

The Detection of the Swarming Impulse; 1915 Prospects; Crop Reports; Why Paint Blisters on the Hive

BY R. F. HOLTERMANN

On page 574, under the heading "Notes from Canada," our old friend Mr. Byer touches upon the detection of the swarming impulse; but he does not leave us any wiser as to how to detect from outside appearance the swarming impulse. Others have claimed their ability to do this, but thus far no one has told me in a satisfactory way how it is done. How? I still doubt the possibility of doing this in a well-managed apiary.

Then in connection with this subject he states, "I rough it alone mostly." Now, friend Byer, is that not a little hard on that son of yours? yes, and on your other family help? In my own apiarian work until last year I have quite decidedly set the pace for my help, and did more than any one else during the season. For the past two seasons I have taken an unusual number of students because I have had what appeared to be an abundance of good material to pick from, and this season being an off season, I have not done so much; in fact I could have got along nicely with half the amount of help. Yes, we did look at every colony once a week for four weeks (June 12 to July 12). Generally the time covered by this inspection is six weeks. In future, however, I may try to examine colonies for the swarming impulse, according to Dr. Miller's suggestion, every ten days. However, the eighth day gives us always a second chance to detect queen-cells before the young queen hatches. With the ten-day system there is only one chance.

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THE 1915 SEASON.

I quite agree with Mr. Byer that the outlook for 1915 for this province (Ontario) is none too good. Most, if not all, of the young clover in my section has been killed by dry weather. Last night, Aug. 10, we had the first good shower we have had for a long time. Now will be the proper time to publish widely the returns to be obtained from keeping bees in Ontario; but just now those who have been so zealous in supplying items for the press as to the profits in beekeeping appear to be busy with other matters. Perhaps they are dodging about to keep their heads from being struck by brickbats from the hands of people who started beekeeping on the credit system.

* * *

CROP REPORTS.

Since sending a report of the honey crop for Ontario July 10, the basswood flow has come and gone. The bees have, where opportunity was offered them, drawn on the supers to feed the immature brood and themselves, this being necessary owing to the complete cessation of nectar gathering that has reduced the expected surplus. Again, some were over-sanguine when they reported, as now the surplus in Ontario will average per colony, not 30 lbs., but nearer 15 lbs.

Then there is the winter feeding to be done. I have 150 colonies marked as requiring immediate feeding, and let me whisper to you I have had one twelve-frame Langstroth starve to death already. So much for the amount of honey a good queen allows the bees to store in a twelve-frame brood-chamber. I expect to use 150 bags of sugar for winter feed.

* * *

WHY PAINT BLISTERS ON THE HIVE.

I feel quite sure it is possible for moisture to pass from the inside of a hive through the board, and collect in a blister between the paint and the board separating the two.

I have seen this in hives used for some time. This was with single-walled hives; but although more difficult I see no reason why it could not take place with a double-walled hive. I have no doubt that in the case mentioned by Mr. Kaufmann, page 606, GLEANINGS, the water went through in the same way.

Having seen such blisters on several occasions in the past, I have felt for years that so far as the welfare of the bees is concerned, they would be better off with unpainted hives. This would make Dr. Miller's contention quite right; he advocates unpainted hives. I have, however, not been able to reconcile myself to unpainted hives —no, not even unpainted supers.

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HONEY IN WAR.

At a Rochester, N. Y., beekeepers' convention I heard it stated that the German soldiers received honey as part of his daily ration. If this is the case there must soon be a shortage of honey.

Brantford, Canada.

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BEES AND "MOVIES"

BY FRANK BROOMALL

Is a moving-picture parlor a dangerous place to visit? Are you liable to inhale or become inoculated by disease germs? Let me give my experience. My vocation keeps me indoors mostly; but this particular year was rather dull in my line, and I found myself with considerable time on my hands. One evening I stopped in a "picture" house near my home, and during the course of the show a film was shown of all the important work of the apiary, or at least nearly all, such as the manipulation of the frames, the hunting of queens, including a greatly enlarged close-at-hand picture of the frame with the queen on it; also extracting honey, swarming and hiving, packing comb and extracted honey; and last, but not least, the consumer enjoying buckwheat cakes and honey for breakfast.

Again the question, "Are picture houses filled with germ-laden air?" I answer, decidedly, yes! at least I came from that place with a well-developed case of bee-fever, and the good wife has since pronounced it hopeless. Honest Injun! I believe she is catching it herself.

The morrow found a card on the way to the Department of Agriculture, Washington, D. C., and before the end of the next week I was eagerly devouring the information contained in the Government bulletin entitled "Bees."

Event followed event in rapid succession as the disease reached the fever heat. The name of the secretary of the nearest beekeepers' association was procured, and soon I was in possession of a full colony of golden Italians. Since then I have experienced the various delights well known to beekeepers. I have made increase by both nucleus and the Alexander method (I prefer the former), have raised queens, and, the most pleasing of all to a beginner, is the harvesting of the first pound of honey.

I find myself a living reality of the picture I have told you about—"buckwheat cakes and honey for breakfast."

West Philadelphia, Pa.

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NOTES FROM GERMANY

BY J. E. HEBERLE, B. S.

FERTILE EGGS IN DRONE COMB.

Inspector Hoffmann reports that he received from Lehrer Schneider a piece of drone comb from which perfectly normal worker bees emerged. This drone comb was from a colony that had ten large combs—larger than the Langstroth frames, which had only small patches of drone comb at the corners; all the rest was good worker comb. So far as I know it has never been recorded that a queen, when there is but little drone comb in the hive, and ample worker comb, would lay in drone-cells fertile and unfertilized eggs.

* * *

ORIGIN OF FORMIC ACID IN HONEY.

Is formic acid produced in the body of the bee, or is it derived from the oxidation of sugar? Muellenhof asserts that the formic acid comes from the sting and poison-gland of the bee. Prof. v. Planta is of the opinion that it originates in the salivary glands of the head and thorax. Dr. Reidenbach does not believe that formic acid originates in the body of the bee, but holds it to be a product of oxidation of sugar. Dr. Merl, director of the laboratory for food analysis in Munich, after extensive investigation, thinks that Reidenbach's theory is probably correct. Dr. Merl asserts that during winter neither head, thorax, nor abdomen contains even a trace of formic acid. He will continue his investigation in the near future on field bees—bees gathering nectar.

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INSTINCT OF SELF-PRESERVATION IN BEES.

R. made in July, 1910, an artificial increase. He used the queen and brood from an Italian and older bees from a black colony. In August the weather was bad—the colony was short of stores. One day a bunch of black bees were found dead in the rear of the hive. No doubt the Italians had crowded or pushed them away from the combs containing the rest of the stores so they died of starvation. It was not race hatred nor emnity, but limited stores that prompted the bees. The old bees could be easily spared. Self-preservation prompted the bees to free the colony from useless consumers on account of small stores and nothing coming in.

The same thing was observed in 1912. An Italian colony that had swarmed in June had a very fertile queen, consuming considerable stores to rear brood. In August the young bees pushed the old ones away from the combs that contain a little food on to the empty combs in the rear, where they would soon die of starvation. When the cover was taken off the old bees rushed out, but were refused admittance between the other frames, and the entrance was also securely guarded against them. Some of the old bees had already died from exhaustion and starvation. This colony was fed, and the old bees at once received their freedom and access to the stores. The death-sentence was magnanimously set aside as soon as the colony was fed and the fear of starvation removed.—*Muenchener Bienenzeitung.*

* * *

BEEKEEPING IN TUNIS.

Mr. Becker writes that the bee is as black there as the black bee of the Continent. He asserts that this Tunisien bee visits flowers, and that the bee of the Continent does not, and concludes from this that the Tunisien bee has a longer tongue than the European races. It is simply astonishing the quantity of honey it gathers. [This depends probably on the profusion of nectar that each blossom secretes.] He thought first that this Tunisien bee swarmed more than the black bee of the Continent, but finds now that it does not. With the Arabs it had to swarm on account of the limited space given them. A cylinder made of reeds about 40 inches long and 8 inches in diameter is used as a hive. Mr. Becker is in charge of an apiary of 500 colonies. They rear queens the year round, but sell only the best of them. He says it is a pleasure to keep bees there, because they have a good honey-flow ten months in the year.—*Leipziger Btzg.*

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BEEKEEPING IN THE ARGENTINE REPUBLIC.

A French beekeeper writes in *Apiculteur* that the movable-frame hive is hardly known there. The swarms are hived in boxes with an entrance in the front and rear. Besides, it has usually a dozen or more cracks and crevices which permit a free entrance to the bees and their enemies. Frames with foundation or pieces of combs are not used in these boxes. The bees build at random in any way they wish. If the owner notices that the bees have some honey in the box he takes it out by using a great deal of very strong penetrating smoke. He waits until the bees have honey again, and then repeats the operation. This robbing of honey and hiving the swarms is about all the native beekeeper does. This French beekeeper has now 170 modern hives. The first year his crop was 7700 lbs.; the second, 15,000 lbs. from 100 colonies, and the last year, from 170 colonies, 24,000 lbs. The pasture is very very good; a large part of the land abounds in good bee-plants. The best is alfalfa. He has 600 acres of it. The honey-flow begins in July with the fruit bloom, and lasts until the rainy season begins in March.—*Rhein. Bztg.*

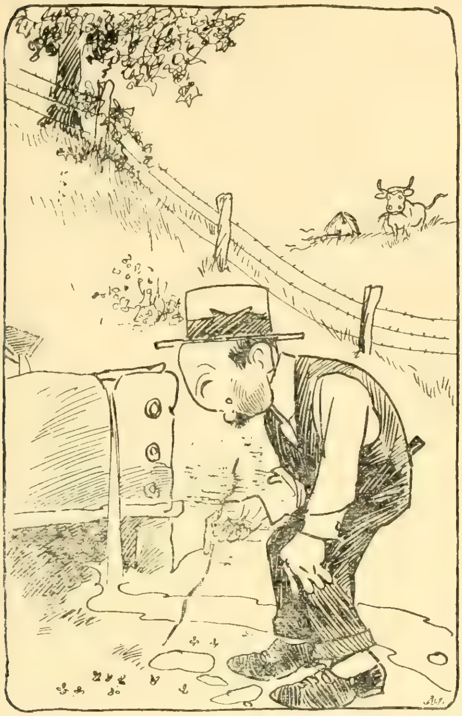
* * *

THE POLITEST BEEKEEPERS IN THE WORLD.

The Chinese are polite toward everybody, especially the bees, because they have a queen. They don't want to kill a queen—not even insult one. If he wants to take honey from the bees he begs them to give him some from their affluence, and says: "You have your house filled with sweets while we have only paprica and bread to eat." At the same time he makes compliments, and burns sweet incense. The bees retreat on account of the smoke. The tailed beekeeper interprets that as assent to his polite request for honey, and cuts out the filled combs. Honey is comparatively expensive in China, and principally used for medicine.—*Illustr. Monatsbl.*

Kempten, Bavaria, Germany.

Heads of Grain from Different Fields



THE BACKLOT BUZZER.

Bet the fellow who started the story about the bees being a nuisance at the watering trough, where the live stock come to drink, didn't linger long studyin' the problem. He went on to town to do his drinkin'.

Does the Use of Thick Foundation in Sections Injure the Sale of Honey?

For the past eighteen months I have been a citizen of Philadelphia. Last winter I wanted some honey; and one night on passing a retail produce house I saw several beautiful-looking 4 x 5 plain sections on display. The price-card read 25 cts. per section, as they were not sold by weight. I learned afterward those sections averaged 14½ oz. from a lot of two cases. On inspection I saw the producer's name on each section, which told me the stuff was true to name, and a first-class article. I purchased one. Next morning at breakfast I sampled the honey; and so far as that part is concerned the liquid was really first-class. The producer used full sheets of foundation in those 4 x 5 plain sections, however, so the midrib was so tough it would not crumble under the pressure of a knife. The use of this foundation made the honey any thing but inviting. To get the honey I placed the whole business in a small tin, and slowly heated it to separate the wax, etc.

I tried other places in this part of the city, but could find no section honey save that which was produced on full sheets of foundation, so I gave up and did not buy any more. I went among the people I have met while here, and others I do not know, making an inquiry into the cause of people not buying or using more honey. The man running the produce store is a very nice fellow, doing an honest business so far as I know. These inquiries proved to me that people earning under $20 per week refused to buy honey on account of the price—25 cts. is altogether out of their means, considering the small amount obtained for the quarter dollar. Personally the same feeling caused me to leave it alone, simply from the fact of the nasty way the surplus wax has of holding the honey. I find the majority of people do not like the wax, and refuse to buy honey on this account. This factor has much to do in spreading the idea that comb honey is manufactured, especially when this wax business proves it. It is surprising to find how many people here in the city have friends or relatives out in the country, and, when sojourning there, they invariably get honey to eat; and I want to say they hardly ever, if ever, get honey in which the wax does not crumble into minute particles when gently mashed with a knife or spoon. Is it any wonder these people think comb honey of the city a fake, after having become acquainted with an article made without foundation? These same people know that beekeepers buy "manufactured" wax in large quanities. They are also acquainted with the hundred and one fakes employed to get their money for any thing needed for the home, and thus it is most easy to associate the use of too much foundation in comb honey as one of these tools to get the advantage of the consumer.

Therefore, brother beekeeper, I want to register my protest against using full sheets in sections. To continue its use renders the matter of fact in attempts to increase consumption of no account. At least it is discouraging to see a really fine honey stored in a surplus of wax. The idea that bees "thin down" the base or midrib in foundation is more theory than practice, if my experience has not been wrongly conducted. RALPH P. FISHER.

Philadelphia, Pa.

Feeding Syrup for Winter Stores Before the Fall Honey-flow

Last winter I placed a plate of syrup over the brood-frames with a Hill device directly over it, which kept the chaff-tray away from it; then I put some excelsior in the syrup to prevent the bees from drowning. If I were going to follow this plan right along, however, I should rather have some dishes made to conform to the shape of the Hill device.

By measuring the Alexander feeder I find that it will go inside an empty super if I want to use it for feeding after the chaff-trays are taken off.

After the main honey-flow is over, and as soon as a drouth or honey dearth comes on, I propose moving all supers so that no syrup may reach the sections, and then feed enough syrup so that the combs will contain enough stores for winter. The bees will then be ready to store the buckwheat and other fall honey directly in the supers again.

Wheelerville, Pa. MRS. SUSAN E. ALLEN.

[We would not advise the plan for the bees would surely move some of the syrup up into the supers.—ED.]

Hard Candy Too Hard to Make

That snow blizzard at Medina, Nov. 9, 10, was no more worthy of recording than our snow blizzard in southeast Oklahoma, to-day, Jan. 30. Our 19 hives of bees are banked high on all sides except southeast, where the escaping warmth has melted the snow and left the entrances open. Our bees are in fine order because I have closely watched and liberally fed them, and because they have just had nine days of pollen and honey-gathering. Strange as it may seem, with snow everywhere now, day before yesterday the bees gathered honey and pollen all day.

My last feeding was after reading of the hard candy method given in GLEANINGS for Jan. 1, and I can say it was not at all satisfactory with me because on examination after feeding the hard candy I found the bees letting it alone. It proved to be so hard that I removed it and fed them my own way, which is so simple and effectual that I have never been able to improve on it. I prepare the feed by working pure granulated sugar into a smooth stiff dough with as little water as possible. Then to feed, I put a batch of this on three or four thicknesses of paper, giving each colony what it needs. I smoke the bees down a little from the tops of the frames, and place the feed directly over the cluster; then I push a long-bladed knife through sugar down between the frames in one or two places; turn up the edges of the paper, put on oilcloth, and then they are fed. I have taken out sugar prepared this way weeks after, and found it a nice soft case, the bees eating as they wanted it. I think the dryness of the air here is the cause of the candy becoming so hard.

We have ten-frame hives, all hand-made by myself. I agree and disagree with W. L. Porter (GLEANINGS, Nov. 15, 1913). If the beginner has ready cash and can get factory-made supplies without unreasonable expense, freight, etc., and knows what to get, all right; but if not, and he can get lumber cheap, and is determined to make a start, go ahead; make supplies and keep bees. I have never had first-class supplies, but have always made some profit.

Valliant, Okla. FRED MYERS.

[There have been some other complaints in regard to the candy being unsatisfactory, but never because it was too hard, always because it was too soft. We are pretty well convinced, now, that, while the candy such as we describe is all right when it is made just right, nevertheless it is difficult to get it exactly he right consistency. We ourselves are having quite good results from the hard candy with the exception of some cases where it grew too soft.—ED.]

Small's Candy Given a Test

The severe weather in February and March caused quite a large number of colonies to die. They flew almost every day until Feb. 7. I tried candy for feeding, as per A. V. Small, page 141, Feb. 15, as late as March, and found it a success. It is easily and quickly made, and I recommend it to any one needing feed as a first-class feed, and one that fills every want of the bees.

Wading River, N. J. S. POWERS.

Less Water in Making Hard Candy

Regarding the time required to make hard candy for winter feeding, it requires about four hours of boiling over a hot fire, with equal parts of sugar and water, in lots of 5 lbs. of sugar and 15 minutes of boiling, with six parts of sugar and one part of water. With the thicker mixture, care must be exercised at the start; and in either case the last five minutes of boiling is a critical stage. The quicker method is entirely safe and manifestly cheaper, and a matter of moment if much candy is made.

A. WHEELER, JR.

West Falls Church, Va., March 9.

[We have tried using less water, but have felt that the danger of burning is so great that it is hardly safe. ED.]

Another Way of Making Hard Candy

I have been reading of trouble in making hard candy. I have followed the candy trade and made hundreds of pounds, so would be glad to help our brother, page 153, Feb. 15. A copper kettle is best, as it retains the heat. Place sugar with enough water to start, add small amount of lemon juice. When it boils place a cover on same and let boil for five minutes; remove cover, and wash down sides of kettle to get all the sugar off. Place a thermometer in batch, and cook to 315 or 320 degrees. Pour on oiled marble, let cool, run knife under same, and when cold sprinkle with plenty of sugar which keeps it from sweating or dries it off.

Modesto, Cal. F. F. TURNER.

On Disturbing Bees in Winter

In reference to the editorial, page 84, Feb. 1, giving the article copied from the *American Bee Journal,* I think your summing-up was wrong. I would sum it up like this: Mr. Doolittle picked out the only colony, in his opinion, that was worth buying, and left those that were worth very little with the farmer. The farmer's bees all died. If the farmer's colonies had not been disturbed *at all,* I wonder if a good number of them might not have been alive in the spring. In my opinion it all depends upon what condition bees go into winter quarters whether they can be disturbed or not.

In 1912 I put five colonies of bees in Danzenbaker hives, doubling up, making one hive out of two. All five were full of bees, and there was from 80 to 100 lbs. of honey in each. These colonies were in my cellar next to the furnace, where we passed them twenty times a day, and disturbed them a good deal more than I had been taught was good for them. Yet they came out of the cellar May 2 and swarmed May 29, leaving the two Danzenbaker hives full of bees and brood in all stages, with queen-cells in both.

This was the mildest winter (1912-'13) we ever had in Quebec. We were able to go canoeing on the St. Lawrence in February. The winter of 1913 '14 was the coldest on record. We had 56 days from 20 to 35 below zero in January and February. I put 15 colonies in winter quarters in the fall in two-story Danzenbaker hives with from 80 to 100 lbs. of honey stored in each hive. They were disturbed in January by moving them into the cellar; besides, we had to bring wood into the cellar next to them with only a board partition between. We had to fire the furnace right next to them. The cellar froze every vegetable in it solid. My bees were without bottom-boards. To-day being fine and springlike we took them out, although it is too early for us. We were anxious to see if any were alive. To our surprise all were alive, and in fit condition to divide, if we had had queens ready to divide them.

It is my opinion that, after two years like these, we can disturb bees in winter quarters and benefit by it, if they are well supplied with bees and honey in the fall—a much greater supply, though, than is generally allowed. Just how much they can be disturbed, I am not prepared to say.

C. A. STEVENS.

Bromptonville, Que., Can., April 22.

A Colony Nearly Destroyed by Mice

Last fall when I put my bees away for the winter I did not turn the bottom-boards, but left the ¾ entrance side up, and slipped in the sticks with the ⅜ by 7 slot, making the winter entrance. Some of the sticks were somewhat loose, and a few days later I noticed one end of one had swung out of the proper place. This did not seem unusual, as there was more or less wind, and I thought the hive might have vibrated enough to cause it. However, this occurred several times, so that I suspected that something was moving them. The fall here was a very open one. Bees flew every day, almost, up till a few days before Christmas. Owing to this I did not put the winter cases on till after Christmas.

When I was ready to wrap the hive that had the entrance stick moved I concluded to look in and see how the bees were faring. I prepare them for winter by putting on an empty super, putting a piece of bent woven-wire fencing over the frames to make a concave space on top of the frames; then a cushion of burlap filled with leaves on top of that. When I removed the top I saw a little mouse-hole drilled through the side of the cushion. I removed this, and looked carefully down among the frames, then patted the cushion all over, and concluded Miss Mouse was not at home. So I replaced the cushion and put the winter case on. A month later came the first day warm enough for the bees to fly; but on looking over the entrances I saw this particular hive nad the entrance entirely choked with bee wings, legs, and such debris. Well, Miss Mouse was there all right, but it proved to be Mrs. Mouse, and she had her family with her. Such a cosy nest as they had, right on top of the frames at the front end, close up to the cluster. Mice evidently don't care for honey, as they had not disturbed the combs, except for a spot about as big as my hand, eaten down to the midrib on the outside of the outside comb, and it had no honey in it (I forgot to say that I had wedged in the entrance stick at the time of the first examination). They had been fastened in the hive, and evidently thrived on a diet of bees and a little wax for a change, for they were sleek and fat. The cluster of bees was much depleted, though, and I do not know whether they will survive the winter or not. The next time I winter any mice I hope it will not be on bees.

Mannington, W. Va., Jan. 27. D. S. FERRY.

Wintering Bees on the Let-alone Plan

Last fall we prepared our 78 hives of bees on their summer stands, feeding them up for the winter, and packing them with chaff and planer shavings; with no upper ventilation. To-day, May 4, I went through the yard and found every colony carrying in pollen. Almost every colony is strong. I had not looked at the inside of a hive since last fall. This is what I did: I mixed about 250 lbs. of granulated sugar, made into a syrup, with about 50 lbs. of honey to flavor it. I fed this out near the yard in April, using my large feeders, and took part of three days to do the feeding, though I will overhaul each hive soon during apple bloom. Some colonies are clustering out now, and need room.

Lakeville, Ind. C. A. BUNCH.

A Cold Cellar

I did not lose over fifty bees out of two colonies that wintered in a cellar where the average temperature for the winter was 33 degrees. Can you beat that?

Howard, Pa., May 8. CHAS. HEVERLY.

Pollen from Cotton-seed Meal in Midwinter

Last fall all my bees went into winter with about 30 lbs. of aster honey, and with a goodly number of bees, taking the apiaries as a whole. My Golden breeding-yard is 3½ miles south of here; and during the winter one of my neighbors, whose barn is about ¼ mile from this apiary, told me that my bees were working heavily every nice day on the ensilage and cotton-seed meal he was feeding his cattle. I fully expected these bees to be weak in the spring on account of so many being lost going after this pollen, not to mention the corn ensilage and aster honey; however, I found that this yard was considerably ahead of all our others—not a single weak colony in the lot. Some at this late date have 14 to 17 L. frames of brood. Nuclei were stronger by one-half the first of April than when consolidated last fall. Yes, some were twice as strong. It's true we had a very mild winter; but does that account for the difference in strength of apiaries?

The way I look at it is, the sap from the ensilage and the cotton-seed meal combined, as this feed was, approaches very nearly the natural pollen as a brood-rearing combination.

Spring Hill, Tenn., April 22. BEN G. DAVIS.

Earthquake in Jamaica Does No Damage to Bees

A violent shock of earthquake accompanied with several lighter shocks occurred in Jamaica on the morning of August 3 at 6:30 A. M. The bee industry, however, was not damaged except in a few apiaries where some of the colonies shifted their position. About half an hour before the earthquake I noticed that rats rushed from the upper story of the house and took shelter in the trees. A few seconds before the first quiver of the earth the fowls all collected together and appeared to be in a great panic. An intense stillness prevailed before the shock, and the hills were enveloped in a grayish mist. During he shock, the earth rocked like a cradle, and one wondered how any building could stand. The trees appeared to be enveloped in a strong whirlwind, and a regular storm appeared to rage during the shaking of the earth. A heavy artillery duel seemed to go on in the air. The earth became an unsafe footing, and one would stagger about like a drunken man, and even the atheist would call upon the Lord for help, for there was no other to call upon.

F. A. HOOPER.

Four Paths, Jamaica, B. W. I., Aug. 4.

Sending Comb Honey by Parcel Post in Tin

I notice what Mr. E. T. Bond says on page 560, in the July 15th issue of GLEANINGS about sending comb honey by parcel post. I wish to say that I am sending out many packages of comb honey by parcel post. I order the square syrup-cans to be sent to me, all made up except that the top end without cap or handle is not to be put on. The end is the same in the top as on the bottom. I cut the comb honey in pieces that very nearly fit the can. With these the can is filled up to within half an inch of the top, and the air-space left is filled with extracted honey. Then the end is soldered on with the ordinary soldering-iron. What is the use of shipping sections whole as long as the wood is to be torn off and thrown away? I have also had tin cans made with a large-sized screw cap. After the can of honey is sealed up, it is put into a wooden box for the mail. Tags are tacked on the side of the box.

Owensmouth, Cal. C. W. DAYTON.

Feeding with Near Candy

I have been obliged to conserve my time and strength; and, not being satisfied with the feeders on the market, many of which will leak while the entrance and rear feeders are cold, I began devising a method of feeding which would do away with the objectionable features of the others.

My inclination is toward the vacuum feeder; but whether the syrup is thick or thin, a change of temperature in the imprisoned air in the feeder causes the syrup to be forced out; and if the bees chance to be clustered under the feeder many of them are drowned or daubed up.

While making candy I was impelled to put half a pound into a Mason jar with a perforated top, and invert that over the brood-nest. I proceeded to make several degrees of hardness of near candy from a syrup which would just pour at 60 degrees F. to a mass that was really candy. These, five of them, I put in hives, in holes cut in the super-covers, seeing that the surface of the perforated top did not touch the top-bars by a bee-space or better.

The first lot of feeders were put in cold. The result was that the thinner syrups, compared with the candy, were forced out. The thinnest of all, which would pour freely at 60 degrees, was all out of the feeder, but the bees had taken up all but a little which remained on the bottom-board. Part of the next batch was still in the jar, and there was a stream of the candy on the comb. In the case of the third, some had been forced out by the change in temperature, and was on the frames; but the top of the cap was well cleaned off, and the bees were busy feeding.

The other two had been put in cold; but while a portion of the candy was gone from each jar there was none on the frames, and the caps were clean.

I at once repeated the experiment, but put the feeders on warm. No. 1 again ran out and mussed up the frames; No. 2 did not, but the candy hung down in thin threads, and might in a little longer time have mussed up the frames. The bees were busy on the three, and the caps were clean.

Being curious to see how the bees acted toward the candy I made a dish of it and put it in the bee-yard. The bees soon found this, and went to work on it. There was no excitement, no stopping to clean up after feeding, no scrambling over each other, and no tendency to excite to robbing; therefore I think that a mixture of sugar and water, with a little acid or cream of tartar to hasten inversion, and boiled to make a mass which will barely crawl at 60 degrees F., gives a feed which is available for stimulative purposes inside the hive or out. It does not induce robbing, or else my bees are naturally not inclined that way. It saves a great deal of time and labor, and will "stimulate" just as well as 4 or 6 ounces laboriously given the bees at frequent intervals.

I am inclined to think that a gallon pail filled with this near candy, and inverted over a hole in the super cover in the fall, would be a fine manner of feeding for winter and early spring, in connection, of course, with a reasonable amount of sealed stores. It would do away with the necessity of opening the hives in the early spring by those who winter out of doors; and those who winter in cellars could put on a one or four quart tin bucket, and then they would not need to look into the hive again until they thought the candy was gone. I think that, if the jars were put on quite warm, and well packed, the temperature would equalize, and the supply of feed would be constant and unchanging until the last ounce was gone.

Up to date my last trial was made with a ten-pound friction-top pail, in the cover of which I punched ten very small holes. Into this bucket I put five or more pounds of a candy which at 65 degrees found its own level in half an hour. I do not think a variation of 10 degrees either way in this mass would make any difference in the result. At the end of ten days this pail had lost weight, but I neglected to weigh it. However, the bees were doing well, and there were four frames with brood in them. I purposely chose one of my weaker colonies to experiment with.

Buck Grove, Iowa. DR. A. F. BONNEY.

Beginner Increases from Two Colonies to Eight

In May, 1912, I bought a small swarm of bees, and had them hived in a moveable-frame hive which I made myself. I ordered a smoker, a bee-veil, a pair of gloves, etc., and as I didn't know any thing about bees they all seemed a curiosity to me. Then I ordered an Italian queen, which I succeeded in introducing more by luck than by my knowledge of the science. It was a very poor season that year, and my little swarm did not increase very much, although I managed to get them through the winter in good condition by feeding them in the fall and packing the hive in leaves. However, when I opened them the next spring they were queenless, and so I wrote to a breeder concerning their condition, and ordered a queen which arrived here promptly. Of course there wasn't any trouble in introducing this one, as the colony was just crying for a queen. After finding that my colony of bees was going to be so late getting a start, I bought a colony of Italians from one of my neighbors for $7.10. I have now increased the two colononies (one of which was a nucleus) to eight good colonies, raised my own queens, and have them in good condition for winter, and have taken 210 pounds of comb honey from these colonies. I sold the most of it at 20 cts. per section.

Stockton, Va. F. W. GRAVELY.

Old Hat-crown Sewed Inside of the Alexander Veil

On page 305, April 15, an improvement on the Alexander bee-veil is shown. I have an improvement which I think is better than the one described. I take an old hat-crown, and fasten it inside the veil by sewing through the center of the crown and the center of the top of the veil. This keeps the veil in position, and acts as a pivot so that the head may be turned in any direction without twisting the veil.

McNabb, Ill., May 9. EDWIN O. GUNN.

Melting Candied Honey in Bulk

I just came across Mr. Bolton's account, p. 445, July 1, of his trouble to get honey out of a large tank in which it had candied. He says, "For two weeks or more two boys had to get into that tank and dig out the honey in dishes and pass it out to me to melt."

Several times I have been stuck with a tank of candied honey. I use the ordinary square iron 400-gallon tank which holds two and a half tons. The first tank worried me. I did not know what to do with it at all . Eventually I built a small log fire back and front, but it took two days' heating by this means before it would pass out of the tap. Subsequently I found a better way.

Generally the honey is not candied throughout. There is a small part, perhaps an inch thick, nearest the tank walls, which will run. Draw off as much of this as possible into open buckets, and heat it in a boiler. When this honey is thoroughly hot, pour it in at the top of the tank, and work it about into the solid honey. Repeat this performance, and in a very little time the whole mass will get thin enough to run.

If no honey will run out of the tank in the first place, dig some out with a long-handled shovel; or if the tank is not quite full heat some other honey, and pour in.

Of course the honey should not be allowed to remain in the tank to candy in the first place, but a lot of things happen which should not. Some of our honey candies very quickly. Some of our ti-tree honey, for instance, not all of it, will candy in forty-eight hours. We get this honey in the autumn, and it is our last yielder. It is a dark, strong-flavored honey, and I was wondering if you had the same thing in Florida, as I noticed you mentioned that the bees you had sent there would be just in time for the ti-ti. Correct name for our honey is ti-ti, but it is generally called ti-tree (pronounced tea-tree).

MAJOR SHALLARD.

S. Woodburn, N. S. W., Australia.

[It is more than likely that your ti-tree is the same as the ti-ti of Florida. Ti-ti honey has a reddish color, strong flavor, and it granulates very rapidly. It also causes any honey with which it is mixed to granulate, even the tupelo.—ED.]

A. I. Root OUR HOMES Editor

Continued from page 649, Aug. 15.

What hath God wrought?—NUM. 23:23.

Just a word more about the "blowing-up" that my neighbor gave me when I broke up the horse-trade. Well, the blowing-up he gave me, dear friends, did not hurt me a bit. It did me *good.* I had the good sense to keep my mouth shut while he was abusing me, but I made some strong resolutions. If it had been expressed in words it might have been something like this: "Look here, old fellow, the time may come when I can buy *you* out, slick and clean, with all your boastful bravado, etc." And his talk and the jeers of the crowd spurred me on to take better care of my customers and business than I had ever done before. I told you there were two other jewelers doing a fair business in our little town at the time I started; but I tried so hard to please and to be honest and square, that in two or three years' time one of the other places was closed up in bankruptcy, and a little later the other establishment was glad to sell out to me, saying the town was not big enough for *two* jewelers.

In our previous issue, through some mistake in type I said the little quarterly I started in 1873 was changed to a semi-monthly. It should have said *monthly,* as GLEANINGS was not published as a semi-monthly till 1891. In those days it was quite the fashion for rival journals or newspapers to pitch into each other. May God be praised that this kind of work has mostly gone by.

Not long after our journal was started, glucose was largely used for adulterating honey before we had any pure-food laws abolishing that sort of business. At this time a story was started to the effect that my yields of honey were secured by feeding the bees glucose. The only foundation for this story was that I made some experiments in feeding grape sugar in place of cane sugar to bees. The grape sugar then on the market was of such a quality that the bees did not care very much about it, and would take it only when there was a dearth of honey. It could be fed in the open air without inducing robbing, etc. Well, the editor of the *American Bee Journal* got hold of it and occupied a large part of one issue of his paper in showing up the inconsistencies of the editor of GLEANINGS IN BEE CULTURE. As soon as I read it I sat down and wrote a reply to be published in GLEANINGS. I had just learned to manage a typewriter, and I had one of the first machines ever made. I had just finished my reply to the unkind attack, and it made a strip of paper a yard long or more. I was just reflecting that it would occupy all the space in my forthcoming issue, and began questioning whether it would be profitable or wise to take so much space in defending myself from a personal attack. Just then my good pastor, the Rev. A. T. Reed, passed in front of the store. I called him in, showing him briefly what the *American Bee Journal* had said. Then I showed him my long string of copy, and asked him to read it. He took it in his hand while he smilingly looked at me and said something like this:

"Mr. Root, I do not think I *need* to read this. Whenever it requires such an amount of space to reply to an atttack on us, something is wrong. If I were you I would put that reply in the waste-basket. If you make any reply at all, boil it down to a few brief sentences."

I had enough faith in the wisdom of my pastor to follow his advice. I took the answer that had taken so much time and brains to prepare and threw it into the waste-basket, and my reply to the attack was just one sentence about as follows: "Our good friend of the *American Bee Journal* has failed to consider that the glucose and grape sugar of commerce are widely different, even if the chemical composition is pretty nearly the same." Then I forgot about the matter, and went on with my business. A little time later a beekeepers' convention was held in Michigan, and I attended it. While I was there shaking hands with a crowd of beekeepers, Prof. A. J. Cook, then of the Michigan Agricultural College (another of God's noblemen), came up into the crowd, and, putting his hand on my shoulder, said:

"Mr. Root, I want to congratulate you on having had the grace and wisdom to reply to a lengthy and unkind attack in just one single sentence."

There you have it, friends. A good and honest man never needs a great string of words to defend himself before the world; and if people right and left would go to their *pastor* for advice when they are getting into a quarrel it would avert a world of trouble, especially if they are willing to *take* the advice as I did.

My department of Our Homes, or religious talks, as they have been called, have brought me in touch with a *great lot* of good men and women. Thirty years or more ago our little journal came into the hands of a poor invalid, Mrs. L. C. Axtell, of Roseville, Warren Co., Ill. She was confined to her bed with but little hope of ever being able to get up. She could just lie on her back and write a little with a pencil. Well, she got the bee-fever, and finally teased so hard for a colony of bees to be placed just a little outside the window-sill that her friends procured one, and fixed her up with cushions so she could lie on her side and see the bees go out and bring in pollen and honey. The new interest and enthusiasm gave her an appetite, and she was soon placed in an easy-chair beside the window. She soon became so curious in regard to the inner workings of the hive that they made arrangements so she could open it, get out the combs, find the queen, etc. You may, perhaps, guess the result. A little later she was outside in her easy-chair, and, later still, upon her feet. To be brief, she eventually walked from one hive to another, handled the bees successfully, took off the honey, forgot her infirmity and feeble health, and soon did the work of a strong man. Mrs. Axtell had been for years an earnest Christian. She had prayed for an opportunity to spread the gospel, and continued to pray as she made progress in bee culture. She promised the Lord if he would give her success she would use the proceeds for missionary work and for spreading the gospel; and finally, with the aid of her husband, who entered into the work also with his whole soul, she produced a crop of honey then unheard of, amounting to 39,000 lbs. Out of the proceeds about $4000 was given to the support of missionaries in foreign lands, and a little tract was published at that time entitled "What the Honeybees have Done for Mission Work," or something like that. Mrs. Axtell recovered her health so as to attend a beekeepers' convention, telling how the Lord had rescued her and given her success with bees. She is still living, and only a few months ago gave me an account of what she is doing now, when she is getting old, not only with the bees but with small fruits and other of God's gifts.

Shortly after the episode I have mentioned in regard to that microscopic photo I announced that Gleanings would be sent to missionaries in any part of the world, free of charge, so long as they cared to read it. I said if any of the readers of Gleanings had friends in foreign mission fields and would send me their names they could have it free of charge as long as they would read it. Now, to illustrate how poorly I was informed at that time in regard to mission work I supposed there were only about a dozen or two missionaries in all the world. After that announcement had gone out, one of the clerks who opened the letters said, "Mr. Root, I am afraid you have been a little reckless. We have an awful lot of letters asking us to send Gleanings to missionaries; and that is not all—you have to pay the postage, 24 cents a year, on most of them, and a few are *48 cents* a year. Can you stand all this?"

I reflected a minute. To tell the truth, I was often hard up at that early day. Again and again I had hard work to scrape up money enough to pay all my help Saturday night. But my little prayer, "Lord, help," that became at that time not only a *daily* petition, but almost *hourly*, rarely failed. When I was getting the boys out of jail and setting them at work, financial help came from unexpected sources. I finally looked at the clerk smilingly and said, "Don't you worry, my good friend. The great Father above will furnish the postage-stamps."

Dear friends, I want to tell you my faith was not misplaced. Now listen to another thing. It is the honest truth that, when I agreed to send Gleanings, I had not a thought of the *advertising* it would bring me. I had become enthusiastic on spreading the gospel; and with the hope that my little journal might help the missionaries I made the decision; and I was more astonished than anybody else on receiving letters from missionaries (which letters were published in our journal) telling me incidentally about bee culture in foreign parts of the earth. From that time forward, orders have been coming, not only from every land where our language is spoken, but orders are still coming from people who do not speak our language; and we not only have an interpreter here in our office, but we have one in New York who can translate our own letters into any of the principal languages of the earth.

In a little time after Gleanings was started I decided there must be an instruction-book on bees; and knowing that it would have to be revised *almost constantly*, I purchased type enough to set up the entire work. It was called the "A B C of Bee Culture." It was at first only a little 25-cent book; then 50 cents, then 75, and so on. The pages being kept all in standing type, it enabled us to make corrections and add to or take out matter as necessary for new editions. This kept us constantly in the forefront of bee-books.

To illustrate with what care and pains I took to have every thing authentic, let me tell you that when I started my chapter on bee-hunting I recognized that I was not competent to do it justice. In our neighborhood there was a character whom we called "Sol Holcomb." He had hunted bees more or less all his life, and liked no better fun than to tramp through the woods bee-hunting. I went over to his farm and asked if I could hire him to teach *me* bee-hunting. He said he would greatly enjoy it, but he was very busy just then on the farm, and he would have to charge me about $1.50 a day—about what he would have to pay a man to take his place in doing the farm-work. Our A B C book will tell you all about it. After my chapter on bee-hunting had gone out, one good friend wrote me, after reading that chapter, that none but an old bee-hunter, a veteran in the business, could have written that account. While I was preparing that chapter a smart-looking chap who was engaged by a music concern in Cincinnati came to Medina to talk about bees. I had a good many visitors about that time, and sometimes they interfered quite a little with my plans and work. After spending a little time with this music man, I explained to him that I had an engagement with a man to teach me how to hunt bees, and begged that he would excuse me.

"But why can't I go along?" asked the stranger.

I told him I knew of no reason why he could not go along if he wished; but as he was rather short-legged, like myself, I suggested that he might get pretty tired, and I think he did; but I guess he seemed to enjoy it after all. While we were straddling over logs, getting through the bushes, etc., I began whistling. I was just then taking lessons on an instrument, and I began whistling my morning exercise. The stranger finally said, "Mr. Root, that is a rather pretty little melody you are whistling."

"Yes," said I, "I think it is quite pretty."

"Well, I am glad you like it, for I composed that little exercise."

I stopped and stared at him. I do not think I had given him enough attention to remember his name; but I just thought to myself that *that* was a rather big yarn, but made no reply. I don't know but I treated him rather coolly after that.* When we were getting out of the buggy at my home he asked to see the music-book that contained the exercise, so I brought it out to the gate. Said he, "Mr. Root, do you see that star?"

I nodded.

"Now look at the line in fine print at the bottom of the page. It reads, 'Composed by Dr. C. C. Miller.' Well, that's *me! I* am Dr. C. C. Miller. I wanted you to see this because you thought I was lying when I said *I* composed it."

You may be sure I made some apologies. Furthermore, I said, "Doctor, if you are a musical composer you certainly know how to play. Come in and play it for me."

Then and there my lifelong acquaintance with Dr. Miller was formed. He played not only the little exercise, but delighted the whole household by singing "The Rock that is Higher than I," and other beautiful hymns. In fact, we were so much taken up with our new friend that I insisted on his staying over night. I suppose I should explain right here that all of this happened before I found the microscopic photograph, and I was not, at the time of his visit, a professing Christian. There was no Homes department in GLEANINGS. Now I want to mention that, as nearly as I can recall, he has since declared he cannot remember any thing about it. My reply to this is that beautiful text where the people say, "Lord, when saw we thee an hungred, or athirst, or a stranger, or naked, or sick, or in prison, and did not minister unto thee?" Now, this is what he said, and I am sure I am not mistaken: "Mr. Root, I told you I came in here to learn about bee culture, and that is true. I have learned a lot. I shall not soon forget the kindness both you and Mrs. Root have shown me. But there is another reason besides bee culture which I wish to tell you; and that little melody you whistled when out in the woods opened the way. In your journal you have a happy faculty of making things plain and of getting hold of people; and I had longed and prayed that you might use that God-given gift to spread the gospel of the Lord Jesus Christ as well as to teach bee culture."

I laughingly replied that I had not said any thing *against* spreading the gospel of Christ. This was, of course, *before* I sent GLEANINGS to the missionaries. Well, his reply was, "He that is not for me is against me." Then I bade him good-by. This talk of his, with kindly words from other professing Christians, had very doubtless very much to do with what came about when I got a glimpse of that little text on the microscopic photo.

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* I had got it into my head that this slick-looking chap had something to sell. Yes, he *had* something to sell, as I afterward discovered; but it was the pearl of great price, and it was to be had without money and without price.

* Before my new-found friend had left he said something like this: "Mr. Root, I am tired of traveling and being away from home. Although I have a good salary I would relinquish it in a minute if I could have any reasonable assurance that I could make a *bare living* by keeping bees." I gave him what advice and instructions I could; and from that time to this, toward forty years, he has been engaged in beekeeping. See page 661 for a brief report of what he accomplished last year. Now please do not think, friends, that the doctor has had such yields all along, for he has *had* his ups and downs (especially the "downs") like the rest of us.

HEALTH NOTES

DAILY BATHING; THE IMPORTANCE OF BEING WASHED ALL OVER EVERY DAY.

I find so many good people among our friends and acquaintances who think they cannot get time to be washed all over *every* day, and who also seem to think it is not so very important, I feel constrained to say a few words in regard to it. Now, lest you think that I get into a bath-tub every day, using a large amount of soft water (which is not always to be had without inconvenience), I will explain how I take my daily bath down in our Florida home where we do not have up-to-date toilet conveniences. As it is often too cold to wash with comfort, especially for elderly people, I take my bath right by our little cooking-stove. It is a part of Mrs. Root's religion to have the fuel fixed in the stove so it will start quickly with a match. She also keeps a kettle of soft rain water on top of the stove. When I first get out of bed I light the fire. If it is quite cool I drop my night-dress down to my waist or perhaps further down. I first get warmed up with a big dry rubbing of my arms and limbs, and, in fact, every part of my body, and no matter how cold the morning may be, I can, by this sort of exercise, get up a circulation so I do not *feel* the cold; and one can have an air bath at the same time, which I am sure is very beneficial. If the weather is so cool that you need to have the *water* warmed as well as the air in the room, by the time you get through with your brisk rubbing the water will be found to be warm enough. I used to stand in a tub so as to avoid slopping on the floor; but a tub is too much bother to get down and hang up again; so I use a large-sized dishpan. You can get one made of cheap tin for a few cents, and it will be light and easy to handle.* Pour some water in the dishpan, and in that way you can give your feet a little soaking while you are scrubbing the rest of your body. Now have the wash-basin for water on a box just high enough to be handy; and the box should be large enough to hold the soap-dish as well as the wash-basin. I think Terry does not use any soap in his daily bath; but with the sort of work I do, and the profuse perspiration I get into every day in Florida, I prefer a little soap for my head and face, and especially my arms and hands. Give both a good scrubbing with soap and water; then, holding your arms over the wash-basin, or perhaps resting one hand on the washdish bottom, scrub one arm clear up to the shoulder, and then the other arm the same way. Then scrub your body all over, going through the same exercise you previously did to get warm. With a little practice you will learn to touch every spot on your body with the bare wet hand. I do not want any sponge nor rag. After you have scrubbed every part of your body from head to foot, go over your feet most thoroughly, scrubbing between the toes; and if there is any part of your feet that is disposed to raise corns, give that a little extra scrubbing with soap; and while we are speaking about corns, I think the daily bath will cure them if you have shoes nicely fitted and *sufficiently ventilated.* I am led to believe that corns are oftentimes if not always nature's protest against a lack of ventilation. After every inch of your body is wetted and rubbed, then give it a good scrubbing with a coarse towel until every part of the body is dry and warm. Do not forget to check the stove or you will find the room too hot to be comfortable before you get through with it. I prefer to take my bath with doors and windows open, and I do most of the time.

Now, with practice you can do all I have mentioned inside of ten minutes; and I think if I were rushed for time I could do it in five minutes,* and half a gallon of soft water is all that is needed. I know there are various machines and inventions to help this daily bath; but I prefer what I have described to any one of them. In my northern home we have a porcelain-lined bath-tub and wash-basins, but I like the plain simple way given so much better that I rarely use a bath-tub. For one thing, it is too hard work for an old man to lie down in a slippery bath-tub and get up again.

Now, besides improving our health there is a tremendous saving in washing dirty clothes. The clothing that I wear next to me is so clean that I often use it two weeks instead of one; and by taking a little extra pains I can keep my night-dress so clean that, if I get my old one and a new one mixed, I cannot tell which is which. Your *wife* will be pleased to have a " clean husband " even if nobody else is.

---

* When I am away from home, or where the dishpan or tub is not available, I simply spread a large towel on the floor and stand on it. With a little care one can avoid getting any water or any thing else on the floor and surroundings.

* In order to be sure that I am right about the time required, this morning I timed myself by the watch. It took just *four minutes* to do the washing and scrubbing off with a dry towel. Now, everybody wants to wash his head and ears and neck and hands every morning, any way, and this operation will take at least one minute; so if you are as spry as I am (at the age of 75) it need not take more than *three* minutes additional to wash all over. Of course this has nothing to do with dressing or undressing. I take it that everybody nowdays removes every "scrap" worn during the day before he gets into bed. If he does not, somebody ought to take him in hand and do a little "missionary work" with him.

In the above I spoke about having a bath in the morning. When the weather is very warm, and I feel particularly hot and sweaty, I take a bath at night. Now, here is another point: I have been suspicious for many years that the time to take a bath so as to have it do the *most good* is when you are sweating so profusely that you cannot only see the foul matter that has been forced out through the pores of the skin, but you can smell it. This is the time for a bath, and you do not want to wait until the sweat dries on. If you do, a large part of the impure matter some way works back through the pores into the body. I have been thinking this a good while, but hardly dared to put it in print until I saw the book " Old Age Deferred," and this book said it is really true. While you are dripping with sweat, and are so wet that you are in danger of catching cold if you sit in a draft, then is the time to give your body a good cleansing with plenty of clean soft water; for if you wait until the sweat evaporates, and your body becomes dry, a certain amount of impure matter gets back into the system to such an extent that soap and water cannot catch it all. Some of you may be inclined to dispute this; but try taking a bath in water not too cold when you are covered with sweat. I remember that on one occasion when living in the " cabin in the woods " I had been working very hard, and was quite tired out. It was quite important, however, that I should go over the hills to a neighbor's a little more than a mile away. I was, at the time, covered with sweat, and thought I would have to give up the trip, as I felt too much used up. I happened, however, to be near a spring in the woods. I just stripped off, and, taking a wash-basin that I kept there for the purpose, I poured cold spring water all over my body again and again. Then I put on my " duds " and made the trip on my wheel over the hills and back, and " that tired feeling" I had was all gone. It did not come back at all, and the next morning I felt especially strong and well.

Now, those of you who wish to join the club that is going to try to live to be a hundred years old, and to be sweet and clean up to the hundred mark, start in with a daily bath, and do something every day in your life to start sweating just a little, with outdoor exercise if possible.

In the above I spoke about the need of ventilation for the feet, and I want to add a word about the ventilation of the whole body. In order to feel well and do effective work with either brain or muscle, especially in hot weather, it is quite important that the whole body be exposed to the air as much as possible, and that we should avoid heavy, useless clothing. Until recently I have been wearing summer underwear that cost $2.00 a garment—union suits. I am now wearing something very much more comfortable, with a good deal more ventilation, and which is more satisfactory all around, that cost only 40 cents a garment, which I bought of Sears, Roebuck & Co. It is something on the plan of the " porousknit " underwear. It gives more air to the body than any thing else I have ever got hold of, and I should think it would be quite durable, as it is all cotton, with no bother about shrinkage at the laundry.

CHEESE; LIKE FRUIT IT SHOULD BE WELL "RIPENED" BEFORE BEING EATEN.

Mr. Root:—I was much interested in your article on cheese as a diet. You speak in regard to many believing it to be constipating. Is not this simply a matter of the quality of the cheese and the quantity eaten? At least from my experience I should say it is. Eaten as many do before it is half ripened, or " green," in small quantities, it surely is; but if eaten in the place of meat, in generous quantity, we have not found it so. You emphasize the necessity of well-ripened fruits and honey. Why not the cheese also? In this market it is very hard to get well-ripened cheese, as nine-tenths of the people call for the green indigestible stuff that is not fit to eat My test for a good cheese is that it should dissolve in the mouth like a lump of sugar or honey. While I have never gotten to the place where I could pick out the " skippers " and eat the cheese, I like it pretty close to that stage. We have an idea that incipient colds and sore throat can be stopped by a good dose of well-ripened cheese. Any way, it is " mighty soothing " to a sore throat to let a piece dissolve in the mouth. I had a school friend whose remedy for a bad cold was to take off his shoes, place his feet as near a hot stove as he could bear, and eat from a pound to a pound and a half of good cheese and go to bed. S. T. WALLAR.

Forest Grove, Ore., July 27.

My own experience agrees remarkably with what is said above, with the exception of the tremendous " dose " of cheese spoken of at the close.

" OLD AGE DEFERRED;" THE SIMPLE LIFE.

The first of the following clippings is from the Cleveland *Plain Dealer*, and the second from the Indianapolis *Star*.

LIVES TO BE 103; CLEVELAND'S OLDEST MAN EXPIRES IN WARSAW, IND.

Moderation in eating was Mr. Clark's primary rule, the one to which he always accounted his longevity. Plain food, no pastries, composed his daily diet. He practiced the theories of Horace Fletcher years before Fletcher gained notoriety by his advocacy of the simple diet. Mr. Clark never used alcohol, and stopped the use of tobacco shortly after coming to this country.

One of his standing rules was, weather permitting, to take a long walk daily. His declining years were made happier by the fact that hundreds of Cleveland and Ohio friends annually tendered him a birthday party.

WORKS DAILY IN HIS GARDEN CLEAR UP TO HIS 100TH BIRTHDAY.

Columbus, Ind., July 1.—Despite an all-day rain, more than 1000 persons were present to-day at a celebration held at Hartsville in honor of the 100th anniversary of the birth of Wesley Potorff, retired farmer of the town. The aged man shook hands with every one present and stood the strain of the day well, although he had mowed all of the weeds about his home on the day previous with an old-fashioned scythe.

He is the father of six children, and has nineteen grandchildren, thirty great-grandchildren, and thirteen great-great-grandchildren.

NEVER USED TOBACCO.

He never used tobacco in any form, and never swore an oath. In his early manhood he became a member of the Christian Church, and for forty years has been a deacon of the Hartsville Christian Church.

Mr. Potorff is well preserved physically for one of his age, and even yet performs much manual labor. Within the last week he has whitewashed the fence around his home and built and hung a gate. He works almost daily in his garden.

By the way, the older I grow the more I feel the importance of teaching children as well as old people the importance of "eating to live instead of living to eat;" also the importance of a reasonable amount of outdoor exercise every day, no matter how old we are, and where can we find a better place for such exercise than in the *garden?*

HIGH-PRESSURE GARDENING

SWEET CLOVER ALONG THE ROADSIDE, ETC.

We clip the following from the *University Farm Press News,* published at the University Farm, St. Paul, Minn.:

> The appearance of white sweet clover along roadsides throughout Minnesota is a very encouraging feature. It is the forerunner of alfalfa, and should not be unwelcome in its own right, since it is practically as valuable a soil-improver as common red clover or alfalfa.
>
> Inoculating the soil for white sweet clover is just as necessary to success as it is for alfalfa; but where seed can be gathered along the roadside at no expense except the labor it will pay in many instances to sow three or four pounds of the unhulled seed per acre with the grain, other clover, and timothy seed. Some of the sweet-clover plants will be inoculated the first year, and more the second year. Alfalfa following will get the benefit of this increase in numbers of the right kind of bacteria.
>
> The thing to do as the sweet clover along the roadsides ripens its seed is to gather it for use on farms, or for sale if more is gathered than is wanted.—A. C. Arny, Assistant Agriculturist, University Farm, St. Paul.

Although the above does not say so, yet we take it that sweet clover has got in along the roadside because they used broken limestone in making the road. We find it growing with wonderful luxuriance all through Ohio wherever crushed limestone has been used for road-making. During a dusty time, when this crushed limestone is carried by the wind over to the adjoining fields the effect is plainly noticeable on all kinds of clover, and sweet clover particularly. The bacteria mentioned can also be obtained by scraping up the soil where the sweet clover grows along the roadside, and sprinkling it over the fields.

DYNAMITE FOR TREE-PLANTING, SUBSOILING, ETC.

Our friends may have noticed (especially our farming friends) that many of our agricultural periodicals are giving illustrated articles on the beneficial results brought about by the use of dynamite. Now, I am glad to see this, and I am glad to welcome dynamite; but still I have had a feeling all along that there is a good deal of exaggeration, especially in selecting the most valuable results. I felt pretty sure, too, many times, that the articles were furnished by the people who have dynamite to sell. Now, this matter is all right if not carried too far. What we want is practical experience from the farmers themselves, and we want the unfavorable reports as well as the favorable. Finally, our experiment stations are the ones to test dynamite and *every thing else,* for that matter, that is being recommended to the farmers. With this in mind I questioned our Ohio Experiment Station, and here is the reply from my good friend Prof. C. E. Thorne, who has been for many years a careful and conservative observer:

> *Mr. A. I. Root:*—I have yours of the 27th, and replying would say that we have used dynamite in a small way for subsoiling on this farm; and while the first season seemed to show beneficial results, this difference disappeared by the second season, and we are not able now to see that the dynamiting has been of any advantage. We have similar reports from other directions, and therefore are not at all prepared to recommend dynamiting as a substitute for tile drainage.
>
> I have set out trees with it, and have been pleased with the ease with which the holes were made; but I do not see that the trees planted in that way have done any better; in fact, not so well as where the land was plowed before planting. When it is not practicable to do this, I think the dynamite a good thing for tree-planting.
>
> One of our drainage difficulties on this soil is that the fine silt soon fills up the drainage crevices, and even tiles will be filled with it very quickly if the outlet becomes in any way obstructed, and we think the crevices made by dynamite would soon be filled with this silt. On the somewhat coarser-grained soil that you have, this objection might not hold.
>
> Chas. E. Thorne, Director.
>
> Wooster, Ohio, June 29.

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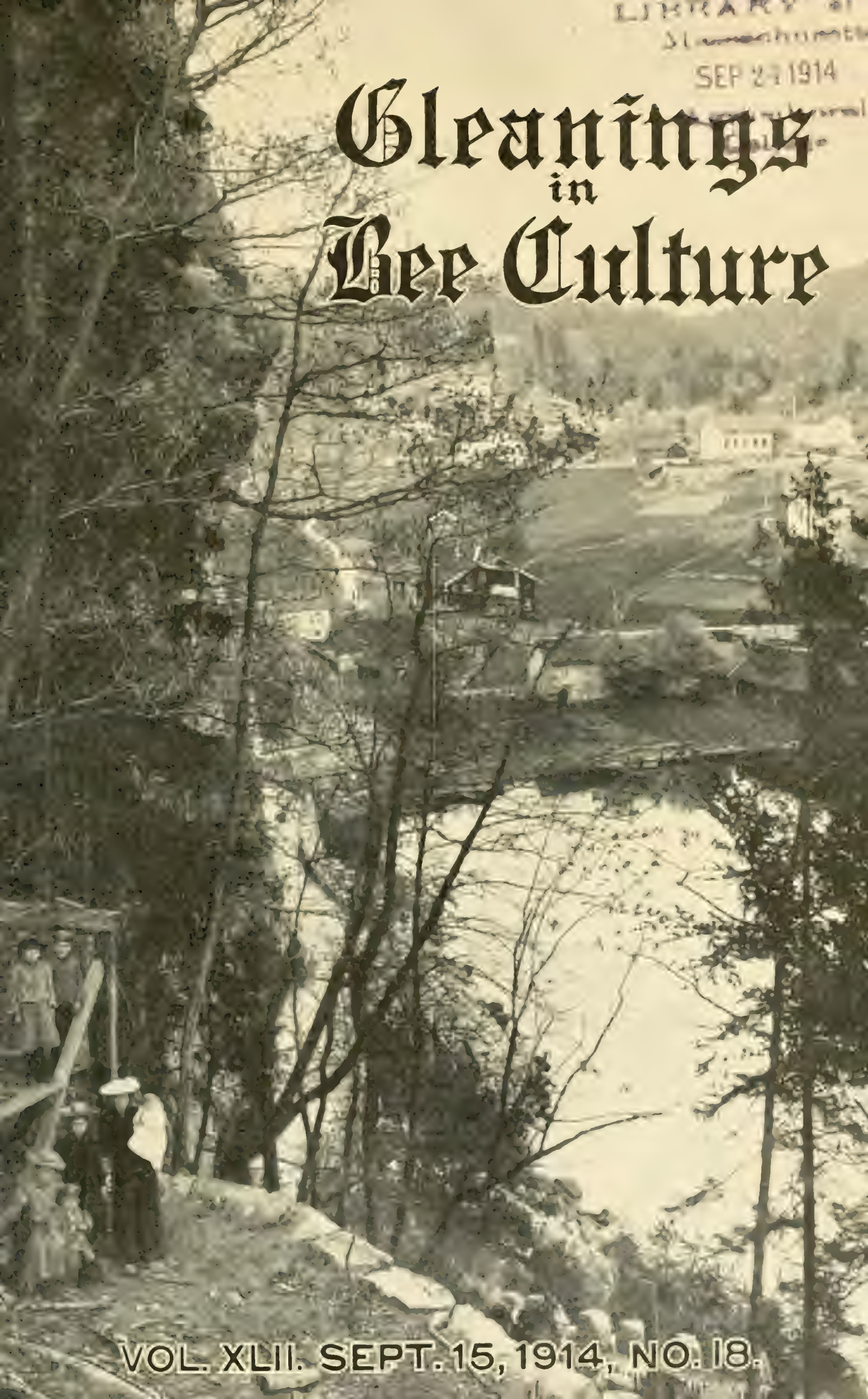


VOL. XLII. SEPT. 15, 1914, NO. 18.

ANSWERS
TO 150 QUESTIONS

By the Editor of . . . . . .
GLEANINGS IN BEE CULTURE

The first fifty or sixty questions are those commonly asked by beginners. The remainder are queries that naturally arise in the minds of more experienced beekeepers. The last hundred questions have been asked by GLEANINGS subscribers, and are put in permanent form in this way because they cover those points which so often perplex beekeepers.

The index enables one to find at once answers which will help him to solve many of the puzzles connected with the care of bees.

The five questions given below have been taken at random from the book.

How can I tell a queen-cell from all the rest?

What is the best way to introduce a valuable queen?

What must be planted for bees to work upon?

I have an engagement to give a live-bee exhibit at our county fair this fall. This will be my first experience. Is it advisable to feed the bees while they are confined?

In comparison, all points considered, for comb honey, what advantage if any has the 4¼x4¼x1⅞ over the 4x5x1⅜ section?

Send for the book as premium when you renew your subscription to GLEANINGS, and read the answers to these questions and the other 145.

A copy of "Answers to 150 Questions" and "Gleanings in Bee Culture" one year } Both for $1.00

Canadian postage, 30 cts. extra; Foreign postage, 60 cts. extra.

The A. I. Root Co., Medina, Ohio

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio

H. H. Root, Managing Editor E. R. Root, Editor A. L. Boyden, Advertising Manager
A. I. Root, Editor Home Department J. T. Calvert, Business Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLII. SEPTEMBER 15, 1914 NO. 18

EDITORIALS

Our Cover Picture

Our cover picture for this issue shows a bit of beautiful mountain scenery as described by Harold Hovind, page 722. Mr. Hovind, as we can see by his letters, is a natural-born teacher—a teacher who feels like a father toward his pupils. Living in such a country, is it any wonder that there are so many whose souls reflect the grandeur of the magnificent scenery? May the memory of the old Norse vikings be ever fresh!

Honey-bees as Pollinators

The above is the title of Bulletin No 8 of the State Board of Agriculture of Massachusetts, that appears also to be a part of the 61st annual report of the Massachusetts State Board of Agriculture. It covers the whole subject very thoroughly, and in a style that any person without any scientific knowledge of botany can readily understand.

Such a bulletin would be of immense help if handed out to fruit-growers who are ignorant of the valuable work done by bees, or who persist in spraying trees while in bloom.

The Net-weight Law as it Applies to Comb Honey

From the United States Department of Agriculture, Bureau of Chemistry, there is issued a monthly, giving copies of letters from Department heads to the public. In the issue for June there is a letter signed by A. S. Mitchell, Secretary of the Committee of Regulations, Net-weight and Volume Law, that has to do with comb honey. While we have already covered the point, the following statement is of value because it comes from high authority:

> The net weight of comb honey is considered to be the weight of the honey and comb, exclusive of the wooden section. It is believed that the tare weight of these sections is easily ascertained, and that the filled sections can be readily sorted into approximately similar weights which may be marked in accordance with paragraph *h* of Food Inspection Decision No. 154.
>
> The individual units must be marked, and the shipping-case may be if desired. The marking should be done previous to their introduction into interstate commerce.
>
> While the regulations do not prescribe the manner of marking, as to whether a rubber stamp may be used, the law requires that the statement shall be plain and conspicuous. Stamping by means of aniline ink is frequently illegible, owing to failure to print or to the running of the ink. If such a stamp is used, care should be taken to make the statement plain and conspicuous, as required by the act.
>
> A. S. Mitchell.

Plain Sections of the Same Capacity Lighter in Weight than Beeway for Same Weight of Honey

Attention is called to the fact that the ordinary standard plain section 4 x 5 or 4¼ square weighs approximately ¾ oz., while the beeway sections, 4¼ square, weigh almost an even ounce. It would be perfectly legitimate for the producer of plain sections, in making up his minimum net weight, to deduct ¾ ounce in place of a full ounce. His minimum net weight then should stand about ¼ ounce more than the same size of section with the beeway.

Reports of Honey-dew Honey

There have been a good many scattering reports of honey-dew, although not by any means as many as during the season of 1908, when so many beekeepers over the country got little else than honey-dew.

We have learned of one beekeeper who has secured eight or ten tons of honey-dew honey, and who wants to know what he can do with it. Of course, it cannot be sold except as honey-dew honey. It occurs to us that there are a number of manufacturing concerns using cheap syrup, New Orleans molasses, etc., for sweetening, and it would seem as though a good grade of honey-dew honey should be better than most of the syrups thus used. For instance, manufacturers of stock food often use large quantities of syrup, New Orleans molasses, etc.

For manufacturing purposes it would seem as though honey-dew might fill the bill very satisfactorily.

Brown Sugar v. White Sugar for Feeding Bees

QUITE a number are asking whether, on account of the high cost of granulated sugar, they could not feed *brown* sugar instead. The question is doubtless based on the assumption that *brown* sugar can be had cheaper or at the old price; but when one sugar is advanced, the other goes up also. Granulated white sugar costs only a fraction of a cent more than the brown, and it will be far better in every way; for while brown sugar *can* be used for winter feeding, yet even if the white cost a cent a pound more it would still be cheaper, because it will go further. Moreover, brown sugar has slightly more of a tendency to cause dysentery when conditions are favorable.

Encouraging the Use of Sweets; or, Honey as an Excellent Substitute for Alcohol

THE great steel interests of Pittsburg are doing all they can to encourage the use of sweets, including honey, as a substitute for alcoholic drinks. They have recently, we understand, purchased a paper printed in the language that their men can understand, and through the means of that paper they are encouraging them to use all kinds of sweets and soft drinks in place of that deadly and destructive mind and soul destroying thing, alcohol. It is to be presumed that these great interests are not animated nor moved by any religious or moral incentive; but practically all of these and other industrial concerns where there is the open saloon suffer from the condition of their force of men on Monday morning, or the day after, as the case may be. Large numbers of their employees go into the saloons Saturday night after getting their pay, and a big part of it, if not *all* of it, is spent for something worse than nothing. The result is, the men are drunk from Saturday night until practically Tuesday morning. Thousands of them fail to show up at their posts; and the steel-men, from a purely economic point of view, have discovered that it is a good thing to encourage the use of sweets as a substitute, and at the same time discourage the use of all alcoholic drinks.

It is a good sign that better days are coming; but right now beemen should get busy. Most of them are temperance men, and this is a good time to take advantage of the situation and sell honey to the workmen in these shops and steel-mills. Explain to them that it is a food—one that will satisfy a natural craving for sweets. By so doing you will remove an abnormal desire for alcoholic drinks.

The Present Status of Swamp Beekeeping in Medina and Vicinity

WE now have seven apiaries located on the edges of some of the big swamps east, southeast, and south of Medina. Two are located in the vicinity of Hudson, where there are over a thousand acres of swamp bee pasturage. One is located near the neighboring city of Barberton; one over near Copley, fourteen miles east of here; another near Sharon, eight miles, and two more south of Medina, near the end of Chippewa Lake, six and eight miles. The bees are building up very satisfactorily, and the increase is something phenomenal. For example, a little over three weeks ago we located near the Hudson swamp a yard of 60 three-frame nuclei. These nuclei were placed in ordinary ten-frame dovetailed hives, and the empty space filled out with combs or foundation. A few days ago we were over to visit this yard, and were surprised to find brood and bees in six or seven of the combs in many colonies where there was a young vigorous queen. A similar increase has been made at other yards. In some cases colonies have been shaken from old combs built crosswise and put on frames of foundation, and now we have in their place colonies in ten-frame Langstroth hives, every thing new and first-class.

On the 1st of September, Mr. A. J. Halter, who is managing our Hudson bees, telephoned over, saying he desired to have us come over and see how our bees were working. On visiting three of the yards we found the bees flying just as if they were working on the basswoods at home, and the honey, too, was white and of good flavor. Mr. Halter was a little uncertain as to what the source might be. After going through the swamp we concluded the main source was from a flower that looked very much like Jerusalem artichoke, sometimes called earth-apple, or Canada potato (*Helianthus tuberosus*). There are other flora that bees work on to some extent, such as goldenrod, wild buckwheat, black-eyed Susan, and some sunflowers (*Helianthus giganteus*); quantities of beggartick, or sticktights, botanically known as *Bidens frondosa,* Spanish needle (*Coreopsis Tinctoria,* and ironweed (*Vernonia Noveborarensis.*) There were also other kinds of *Helianti.* All in all, there was a great variety of honey-plants that Mr. Halter thought would keep the bees busy up to severe frosts.

All of this increase has been made in the face of eight-cent sugar, scarcely a pound of which we have fed.

That reminds us that there is one yard where we are feeding Porto Rican honey. because it is cheaper than sugar. As this yard is located where there is no fall or swamp pasturage we decided to try out the proposition of feeding cheap honey, and putting the cost of this against the expense of trucking the other bees back and forth to the swamps. Porto Rico has never had foul brood; and after it came into the possession of the United States a very strict quarantine was established, so we think we are reasonably safe in the belief that this honey will cause no bee disease. More anon.

Will Cane Sugar on Account of the European War, Rise to 15 Cents a Pound?

WE are told that of the sixteen million tons of cane sugar now produced in the entire world, more than half comes from the nations at war in Europe. These nations will not now be able to harvest their beet crops on account of all the men being engaged in war. The United States, including her possessions, produces but little more than half of the sugar consumed in her own borders. If the United States consumes twice as much sugar as she produces, and if Europe under normal conditions produces half the sugar of the entire world, and this half is now cut off, it can be seen that there will necessarily be a great scarcity of cane sugar, and the price is bound to rise according to the simple law of supply and demand, no matter what the Department of Justice at Washington may say about it. It has been estimated that cane sugar will go up to 15 cts. a pound if the war continues for any length of time; and at this writing, Sept. 4, it does not seem as if it would stop very soon. If sugar goes to 15 cts. a pound, naturally enough honey will have to be used as a substitute in many cases; and if that is true the price is sure to rise.

As we pointed out in our last issue, the South American and West Indian honeys are coming into the United States at any old price. If sugar goes up to the point of 15 cents, Europe will substitute honey for it. It will hardly take glucose on account of its low sweetening power as compared with sugar or honey.

No one knows how long the war will continue. No one can accurately predict just how long the high price of sugar will prevail, whether it will advance, nor how much the advance in sugar will tend to stiffen the price of honey. But the presumption is that both will rise somewhat; and the housewife, if she has not canned all of her peaches, may substitute a cheap honey. If cane sugar should go up to 15 cents, she could well afford to use even the table extracted honey for canning.

The logic of the situation seems to indicate that beekeepers everywhere in the country should get busy in pushing the sale of honey for use in the home, such as sweetening coffee and tea, and for cooking and baking. If we can once get honey introduced into homes for domestic purposes its use will continue to a great extent, even when conditions have resumed their normal.

Later.—The American Grocer, one of the greatest authorities in the United States on foods, gives in its last issue a lengthy discussion on the production of sugar. It confirms all we have said above, and then adds this paragraph in the way of a summary:

> The march of armies over the beet-fields of Russia, Germany, Austria-Hungary, France; the withdrawal of millions of men from industries, will, if long continued, so diminish the word's supply as to make it possible that refined sugar may advance to prices ruling here after the civil war, when hard sugars sold above 16 cents a pound.

In the mean time we learn from a candyman that the wholesale price on candy is advancing on account of the rise in price of sugar. Candy is a luxury; and if that can advance, honey, a luxury and a real and necessary food, should advance also. If sugar should go to 15 or 16 cents, all other sweets will necessarily rise.

Destruction of Germs of Infectious Bee Diseases by Heat

THIS is the title of Bulletin No. 92, by Dr. G. F. White, expert engaged in the investigation of bee diseases, of the United States Department of Agriculture, Bureau of Entomology. This bulletin will have more than ordinary interest and value at the present time in view of the high price of sugar and the possible and probable substitution of cheap honey for fall or winter feeding. Of course it is unsafe to feed any honey coming from an unknown source, on account of the danger of transmitting foul brood; but all such honeys will be rendered safe by boiling for a certain length of time. From page 8 of this bulletin we quote the general summary:

> The results of these experiments show that when they are maintained for ten minutes the minimum

temperatures that can be used for destroying the germs of the four bee diseases now known to be infectious are as follows:

1. The minimum temperature for European foul brood lies somewhere between 60 degrees C. (140 degrees F.) and 65 C. (149 F.), being approximately 63 C. (145.4 F.).

2. The minimum temperature for American foul brood lies somewhere between 90 degrees C. (194 degrees F.) and 100 C. (212 F.), being probably less than 98 C. (208.4 F.).

3. The minimum temperature for sac brood lies somewhere between 55 degrees C. (131 F.) and 60 C. (140 F.), being approximately 58 C. (136.4 F.).

4. The minimum temperature for nosema disease lies between 55 degrees C. (131 F.) and 60 C. (140 F.), being approximately 57 C. (134.6 F.).

It will be noted, therefore, that 63 degrees C. (145.4 degrees F.) for European foul brood, 98 C. (208.4 F.) for American foul brood, 58 C. (136.4 F.) for sac brood, and 57 C. (134.6 F.) for nosema disease are the approximate minimum temperatures at which the germs of these diseases, respectively, are destroyed. Since there are varying factors in experiments of this nature that tend to produce slight variations in results, these temperatures are referred to as being approximate. It is probable that future experiments may cause slight changes to be made in these conclusions. Nothing more than a comparatively slight variation is to be expected, however. In practice the beekeeper, in destroying these germs by heating, will naturally use a quantity of heat somewhat in excess of the minimum amount that is absolutely necessary.

Some generalizations may now be made which will be of interest to the beekeeper. The melting-pot of beeswax is between 62 degrees C. (143 6 degrees F.) and 64 C. (147.2 F.), inclusive. It will be observed that this same temperature in ten minutes will destroy the germ causing European foul brood, and that it is about 10 degrees F. above that which will destroy the germs of sac brood and nosema disease. A further interesting generalization may be made concerning the heating of honey. Honey when heated to 160 degrees F. reaches a temperature 15 degrees F. above the temperature necessary to destroy the germ of European foul brood, and about 25 degrees F. above the temperature that will destroy the infecting agents of sac brood and nosema disease. The infecting agents of these three diseases of the bee, therefore, will be destroyed when the temperature of 160 degrees F. is used in the commercial handling of honey. Finally, it is believed that the results of this work on the thermal death-point of the viruses of the bee diseases will be directly applicable to the control of these diseases.

From the last paragraph it would appear that the melting-point of wax applied only 10 minutes would not be sufficient to kill the germs of American foul brood. As a matter of fact, all beeswax that is used in foundation goes through not less than three separate heatings; and while the temperature is probably never up to 212 (the boiling-point of water), yet the separate heatings and prolonged periods of heat are sufficient to kill all the germs. So far as we know, no case of foul brood has ever been transmitted in foundation.

Speaking of European foul brood, that disease can be easily killed by a temperature of melting wax if continued for ten minutes. But the temperature at which beeswax is ordinarily melted when refined is from 180 to 190 F.; and according to Dr. White a temperature of less than 208 F., if applied ten minutes, would do the work. But the ordinary beeswax is kept at 180 to 190 for not less than an hour. The steam is turned off, and the wax slowly cools for 24 hours.

The ordinary foundation-factory buys its wax in all kinds of shapes and sizes. Some of the cakes are dark, a few of them are almost black, and practically all are off color, and have to be clarified. All of these cakes are put into a large tank holding not less than ten barrels. About a quarter of this bulk is taken up with water. This is heated by means of a jet of live steam, bringing the temperature up to 190 F. The whole mass is kept in a boil for an hour or two, or until it is thoroughly mixed. It is then allowed to stand for 24 hours, gradually cooling. The object of this is to permit all particles of dirt and general foreign matter to settle into the water while the clear wax rises to the top. Just before it comes to a solid state, or when it can still be poured, about 24 hours after turning off the steam, the wax on top is drained off into large pails, and then allowed to cool.

After the wax has been refined and clarified it has to be melted again on hot steam-pipes before it can be sheeted; so that, all told, practically all the beeswax before it goes back to the beekeeper has been subjected to three different heatings, covering a total period of 30 hours. This would kill any thing.

This bulletin rather gives us assurance that the ordinary bottled honey that has been heated to prevent granulation will be rendered free from the germs of European foul brood, and possibly American, although this latter is by no means certain. Ordinary honey for bottling is heated to a temperature of 160 degrees at two different times. In all probability the honey is granulated by the time it reaches the bottler. He heats it and runs it off into tanks. It may or may not be allowed to cool; but in order that it may flow freely it is heated again and then sealed while hot. The two separate heatings at 160 for a couple of hours each would probably kill the germs of even American foul brood. It might do so entirely. The statement has been made that bottled honey is a frequent source of foul brood because the consumer throws away the empty bottles. Dr. White's observation would give us hope that they are not—certainly not European foul brood. However, we would never feed bees honey heated to the proper temperature for bottling, an account of the danger of transmitting American foul brood.

STRAY STRAWS

Dr. C. C. Miller **Marengo, Ill.**

SUGAR has gone up more than 60 per cent in a month, and is still rising. I wish it would take honey up with it. [See editorial comments elsewhere.—ED.]

QUOTATIONS on comb honey, Aug. 15, are 12 to 17 cents a pound. That's evidently under the old law. To fit the new law, and bring the same price *per section*, the price must be 1 to 1½ cents higher per pound, according to price and weight.

"THE eight-frame hive . . . . . . must be worked in sections on the divisible-brood-chamber plan," p. 531. Sometimes, before supers are given, never after, at least "in this locality." [Something will depend on whether you are running for comb or extracted honey. You run for comb and we agree with your amended statement.—ED.]

C. P. DADANT says, *American Bee Journal* p. 279, "I have seen so many good queens prove good the third year that I prefer not to replace a first-class two-year-old queen by one whose ability is unknown to me. The bees usually requeen in good time, if the matter is left to them." Same here. Those who think it pays to requeen every year might gain by getting a new strain of bees. Yet there are always some queens which do not come up to the mark, and they should be promptly replaced.

MR. EDITOR, allow me to emphasize what you say, p. 362. The report of failures may be just as valuable as the report of successes. We're all somewhat inclined to run in the same grooves. If I get it into my head that some fool thing will be a success, a number of others are likely to have the same notion. If no one reports failure, others will keep on trying the same thing. The man who reports failure saves a lot of others from the same failure. Then as to reporting before a thing is fully tried. A man may have a valuable idea which takes a considerable time to try out. He may die before completing his trial, or it may be that others may hasten the decision; and at any rate, if he's the right kind he'll want to share what he expects to be a good thing just as soon as possible. So go ahead, report your half-baked schemes and your failures; and if others laugh at you, you laugh too.

"A VERTICALLY wired comb will be wavy," p. 605. Is that "locality" again? My first wiring, and nearly all of my wiring was vertical, and of the hundreds of combs I do not recall that any were wavy. [Something depends on the weight of the foundation you have, and how old it is. A light-weight foundation will have a tendency to show these waves more than the heavier grades. In the same way, a foundation that has been made, and laid away on the shelves for a year or so after it is made, will be less inclined to show this peculiarity after the combs are drawn. We should guess that you use a foundation that you have ordered six months to a year ahead of time in order to take advantage of the discount, and to be sure that you have it on hand when you need it. If this is true, it is age rather than locality that accounts for the difference. Years ago, when we used vertical wiring exclusively, a large part of our combs were a little wavy—some more than others. Whenever we put in foundation we use an article fresh from the mill, partly because we have no other, and partly because the bees draw it out a little more readily.—ED.]

JULY 6, 11:10 A. M., I gave a comb to my best queen, taking from her all other combs, and took the combs away again just two hours later. The comb was given to a full colony made queenless. Ten queen-cells were started on the comb, and were sealed July 14. July 20 I cut out the cells and put them in a nursery. At 5 A. M., July 21, I went to see if any of the virgins were yet out of their cells. Six were already out! But I don't think they had been out long. If we assume that the eggs from those cells were laid the minute the comb was given to the queen, and that the virgins emerged from their cells the instant I opened the hive July 21, it would make the time from the laying of the egg to the hatching of the queen 14 days, 17 hours, 50 minutes, or 6 hours and 10 minutes less than 15 days. But that's an unreasonable assumption. The likelihood is that the queen did not lay within an hour (in other cases it has been two or three hours) after the comb was given to her, making the time just so much less. The difficult part is to get the queen to lay in a given comb within a short space of time. Sunday came in the way or I would have determined the time of development of the workers. [The period of incubation of young queens varies, according to our experience; and that variation we attribute to weather conditions and the particular environment furnished by the colony. If you were to try the experiment again, when it is a little cooler, and with a different colony, you might get a longer time of incubation. The period may be increased if the colony is not strong.—ED.]

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

The later honeyflow seems to be quite disappointing in many localities in the southern part of the State. While there are some locations where honey has been secured in surplus quantities, no such flow as had been anticipated has materialized. Since the middle of July my bees have secured only enough to keep them breeding well. A few have gained a few pounds; but as a rule they have made only a good living.

* * *

On page 619, Aug. 15, Dr. Miller says, "It would be much simpler if 'black brood' could have been left as the name of the New York disease, which is now being called European foul brood, and 'foul brood' had remained the name of the other disease called American foul brood." Some time ago I was advocating the same thing, when my attention was called to the fact that we had no law covering "black brood," and that it would be impossible for an inspector to collect for his work in inspecting for the black brood under the laws of California. On this account I quietly came off the trail.

* * *

In my opinion J. E. Crane is right, page 622, Aug. 15, when he concludes that superseding takes place at all times of the year. My experience has been that there is more superseding done in the height of the harvest, for at this time there are many old queens being replaced by young ones. The number of cases of supersedure outside of the honey season is very small, and most cases are forced by the failure of the old queens. In the majority of cases a swarm issues with the first hatched of the virgins during the honey season. Out of 17 swarms this season twelve were known to be induced by supersedure.

* * *

In the Aug. 15th issue the editor calls our attention to A. J. Plummer's scheme to stop robbing by trapping the robbers and holding them until they become harmonized. I mentioned a scheme very much on this line in the Aug. 1st issue, that was practiced by Mr. Byron Crawford, my helper during the season, he having copied it from Mr. W. H. Crawford, his father, who is a successful beekeeper of Roswell, N. M., and to whom the origin of the idea should be credited. The plan is successful on general lines; but the bees are still robbers, and will be nosing around the very first opportunity that is offered. Trapping does not change their dispostion to rob.

* * *

After reading the account of our editor's experience in moving bees, with some knowledge of recent experiments along that line I have acquired from other sources, I have begun to doubt if migratory beekeeping is really a paying business. To move into another locality is a different proposition; but to practice moving from place to place is an expensive business. There are few localities that are worthy of the name of a "bee country" but that will give an occasional good crop that, when figured as an investment, does not require the deduction of an immense expense account before figuring net profits. To my present way of thinking it would be preferable to have several yards in different localities. In this way one would be almost sure to "get in good" some place on his private bee map every season, and once in a while several would give good crops the same season, and thus add greatly to the profits of the business.

* * *

There is a common impression that foul brood cannot be eradicated, and quite frequently we hear expressions that it is here to stay. As a matter of fact there is really no reason to take such a gloomy look at this situation. There is no question but that it will take the combined efforts of the beekeeping public and the close scrutiny of our bee inspectors, the latter more especially, to look after the small uneducated beekeeper and the careless plunger who takes little interest in his holdings until about time to extract. The apiaries of the majority of our first-class beekeepers do not need to be inspected, yet they should submit to and rather encourage the inspection of their bees for the moral effect on the other fellow; and I might add that there are times when even the best and most careful of us will pick up a case before we are aware of the fact, which is rarely contracted from a first-class beekeeper. Diseases of man are not half so destructive as a whole as they were before an organized fight was begun on all kinds of contagion, with strict quarantine laws to aid in the fight. The same rigid organized system back of the fight on foul brood would at least reduce it to very small proportions, and should eradicate it entirely.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

In sections of New Mexico and Arizona beekeepers are suffering losses of honey yields from the catclaw on account of a kind of blight that destroys the blossoms during the blooming period. Several inquiries have been sent me for information on the subject; but it has been impossible for me to find an answer to this question with the meager particulars at hand. With the intention of drawing out more information on the subject I am mentioning it here. I shall be glad to hear from beekeepers from every section of the country where catclaw grows, if they have experienced trouble of this kind, with a description of the trouble and its extent. As soon as enough of this information is in I shall be glad to investigate the actual cause of the trouble and make a report.

* * *

BEES AND POULTRY AT THE TEXAS DRY-FARMING CONGRESS.

The Texas Dry-farming Congress has just adjourned one of the most profitable sessions here at Hondo, Texas. These Congresses are held annually at various places in this semi-arid portion of this great State, and are indeed a great benefit to the country.

All branches of agriculture are given attention at these meetings. Experts in their respective lines of work are on the program, and the discussions are very valuable.

At the meetings just closed, lasting for several days, the subject of bees was given a proper place on the program. W. O. Victor was one of the speakers, with the subject, "My Experience with Bees in Southwest Texas." In his discourse he enumerated his varied experiences in different seasons he has been keeping bees in this part of the State. He mentioned the large crops that are often obtained during favorable seasons, but at the same time called the attention of his listeners to the fact that not all seasons are so favorable. He related that he has had to feed hundreds of dollars' worth of sugar in order to tide his starving colonies over a severe and unfavorable spring or an extreme summer drouth. But he stated that he was always repaid a thousand fold for this extra care on his part in bountiful honey crops later.

As the Apicultural Expert of the Texas State Department of Agriculture, I was also on the program. The important role of beekeeping, and especially as a splendid combination with poultry in the present-day movement for diversified farming, was emphasized. The home fruit orchard as a splendid place for keeping both the bees and poultry, and the benefit to the orchard of such a combination, was also pointed out. I also mentioned the fact that I have never believed a farm complete without a few colonies of bees, carefully kept in modern hives, to furnish for the family that most healthful of all sweets—honey.

* * *

MEETING OF TEXAS BEEKEEPERS' ASSOCIATION AT COLLEGE STATION, TEXAS.

In July the Texas Beekeepers' Association held one of the most profitable sessions for a number of years. More real business matters received attention at these sessions than at any previous meeting, and more interest and enthusiasm prevailed during the many topics under discussion.

It would be impossible for me to mention even briefly the many important matters discussed; but it is my intention to bring brief accounts of the most important matters from time to time.

It was gratifying indeed to listen to a real business-like president's address, delivered by M. B. Caraway, of Mathis, Tex. In his address he called especial attention to the importance of co-operation and organized effort on the part of the Texas beekeepers—one thing that is very much neglected by them now. He pleaded for a greater uniformity in packing our honey crops, since the great difference in packing honey now is an exceeding detriment to the honey industry in Texas. A greater uniformity of honey prices is also sought, because the beekeepers as a whole have had to suffer severely on account of the great lack of stable market prices. Among other things the importance of an active legislative committee to look after sufficient appropriations for carrying on the foul-brood-inspection work was mentioned. Due to the failure of procuring such appropriations during the last session of the legislature, our foul-brood law has been practically a "dead issue," because no inspection could be done.

It is gratifying to me that these, and quite a number of other matters of importance, were given so much attention, because I have mentioned all of these subjects from time to time in these columns. I have often regretted that these important questions did not receive the attention of the beekeepers before this time, because there has been an actual loss of thousands of dollars to the beekeeping industry in Texas on account of this very lack of attention.

J. E. Crane

SIFTINGS

Middlebury, Vt.

The honey season here has been very disappointing. Poor—very poor.

* * *

Mr. Byer's experience in different locations is certainly instructive, p. 493, July 1; while it is well to choose a location wisely we cannot be sure of a successful season every year; and the old proverb, "a rolling stone gathers no moss," is as applicable to beekeeping as to any other pursuit.

* * *

During last winter many of my hives were covered with snow for several weeks, yet without harm. One yard of over sixty colonies was almost entirely covered, yet only one colony failed to respond to the April roll-call, and that had evidently decamped, as it contained no bees, either dead or alive.

* * *

I have been in the habit for many years of mixing honey with sugar syrup when feeding in autumn to prevent granulation; but for the past two years I have with some hesitation fed the sugar syrup (two of sugar to one of water), without honey, and found no more granulation, either last spring or the year before, when honey was mixed with the sugar syrup.

* * *

Mr. Chadwick, page 491, July 1, says, "A poor queen cannot always be judged by the amount of bees in her colony," as, by changing the hive so she will have more workers, she may prove quite prolific. Now, this is doubtless true so far as the laying of the queen is concerned; but when a colony runs down, as he says, it shows that, if the queen is not a poor layer, her offspring are lacking in stamina, endurance, or longevity, which is quite as important as numbers in the campaign of honey-gathering.

* * *

Dr. Miller, page 531, suggests the use of the sharp cutting pincers the blacksmith uses for clipping the hoofs of horses, instead of a saw or pruning-shears recommended by A. I. Root for removing the spurs from fowls. Now, if we may stop the discussion of beekeeping problems for a little, let me suggest the application of a small amount of caustic to the spurs of young fowls, and prevent their growth the same as applied to calves to prevent the growth of horns.

* * *

Arthur C. Miller well says, page 498, July 1, that he prefers to have foundation drawn out in upper stories over full colonies. The best place, surely; but when he says the best time is when the bees are at work on honey-dew, it is all right if you have it in quantity, but we do not have it about here plentifully enough for that purpose oftener than once in twenty-five or thirty years; in fact, I have known it but once in more than fifty years.

* * * *

Some time ago I inquired in regard to the chemical composition of pollen, and I recently received a letter from a good friend, Adrian Getaz, of Knoxville, Tenn., saying that there is plenty of information along this line in the standard works. He says further that "In general the pollen differs but little from the seeds of the plants except that it has more fatty or oily compounds, and seldom any fecal matter—bitter, poisonous, medicinal, or aromatic, which one often finds in seeds. Beans come nearer the average pollen than any other grain." Thanks.

* * *

We are greatly indebted to GLEANINGS for the full discussion of the net-weight law as it relates to the packing of honey. The expense of packing, by this law, is increased. That must come out of the beekeeper unless the price of comb honey is raised; and it would seem as though that would be the inevitable result. It will, I believe, drive many beekeepers now producing comb honey to producing extracted, which can be sold in bulk, and so avoid the bother. I believe it will also have a tendency to cause comb honey to be sold by count rather than by weight, as at present in the East.

* * *

Wesley Foster asks, page 406, "When is a colony inspected?" A pertinent question, surely, to every inspector. If there is much disease in a yard it will almost invariably be found in a few of the weaker colonies. If none is found in them it seems hardly worth while to go through all, especially if covered with heavy supers. So we may inspect by lifting one or all the combs from every hive; but by the last method we can not get over nearly as much territory. Many times I find that it is as cheap to help a man clean up his yard as to destroy the bees and hives if he does not. A little assistance in this way produces good feeling between the inspector and beekeeper.

Dr. Miller, page 325, May 1, thinks I am a little hard on the other Miller for thinking a colony needs 35 lbs. of heavy syrup Oct. 1. Well, let's see. I have found by weighing that even heavy syrup fed to a colony shrinks greatly before it is ripened and stored, and it is not safe to count on more than 25 lbs. of food as the equivalent of honey. I have also found that a good colony will consume, from Nov. 1 to April 1, on an average, 17 lbs. of honey when wintered out of doors. I learned this by shaking the bees from the combs and weighing them, both in the fall and again in the spring the first week in April. This leaves only 8 lbs. for spring use. Where bees are wintered in a good cellar, seven or eight pounds less of feed will answer; but I was speaking of bees wintered out of doors. Mr. Miller's idea, that those who feed do not as a rule feed half enough is quite right, especially as to beginners.

* * *

I suppose it is somewhat easier to keep quiet than to report our experience when it is different from that of those with more experience than ourselves. I have been somewhat surprised that we have had few or no reports of failures in introducing queens by the "smoke method." Even the best methods of manipulation will sometimes fail, and I find this method no exception. I have not found beekeepers as enthusiastic over it as I had expected. In talking with one very intelligent beekeeper he said that he tried to introduce some twenty queens by this method last year, and lost more than half of them. He did not seem bitter about it, but thought the reason for his lack of success was that his colonies were crowded with bees; and the frames coming down quite close to the bottom-board prevented the smoke from thoroughly penetrating to every part of the colony. It was his opinion that the method would be likely to prove more successful with smaller colonies, or where there was more room between the bottom of the frames and bottom-board.

* * *

Mr. P. C. Chadwick, page 491, relates a very interesting case of the effects of a sting. During the past fifty years I have seen a good many cases of severe poisoning from stings; and I might say, in a general way, that some poisons seem to have a particular affinity for some part of the body, as alcohol has for the brain, or bee poison for the parts about the eye. There appears to be an effort on the part of the system to expel poisons through the liver, kidneys, lungs, skin, or mucous membrane. Some poisons appear to be expelled in one way and some in another. Bee poison is evidently driven out of the body through the skin or mucous membrane, or both, and will, in persons especially sensitive to this poison, sometimes cause the whole body to be covered with blotches and cause intense pain over the whole surface. When poison passes through the mucous membrane it may so irritate the lungs as to cause coughing and sometimes almost suffocation and other distressing symptoms—even loss of consciousness. The best treatment I have found is to get the patient into a profuse perspiration with an alcohol-lamp or hot bath as quickly as possible, thus drawing the blood and poison to the skin and keeping up strength with ammonia as a stimulant. In every case, so far as I remember, as soon as rapid sweating is produced the throat and lung symptoms slowly disappear.

* * * *

Page 531, July 15, Mr. P. C. Chadwick says that he thinks Wesley Foster entirely right in saying that "Bees clustered outside their hive are wasting time," and, of course, thinks I was entirely wrong in not feeling sure about it. Well, now, did you ever! Because we see a woman sitting under the shade of a tree by her kitchen door when the mercury is at 90 degrees in the shade, it is no sign she is loafing or wasting time. She may be shelling peas or paring potatoes for the noonday meal, or, it may be, darning stockings or making a dress for the baby, and, like a sensible woman, does her work where she can be most comfortable; and it is unbecoming in us to criticise her. For the comfort of my friends Chadwick and Foster, let me say that I thought and felt, thirty or forty years ago, very much as they do now. We called it "loafing" in those days. If no honey is coming in, there is certainly no loss in bees clustering outside their hive. If nectar is coming in freely we shall doubtless find every blessed bee clustered outside full of nectar which they are reducing to honey. That bees can evaporate the excess of moisture from nectar in hot weather outside their hive I think needs little proof. I will say, however, that I have found a colony that had clustered on a tree and remained gathering nectar, evaporating it and building their combs and storing their honey in the open air. Of course, if the entrance is very small and insufficient there might be some loss or waste of time when bees cluster outside; but where there is sufficient ventilation, and they cluster out for a day or two in the intensely hot or humid days, I have come to think there is little waste of time.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

UNRIPE HONEY.

"Is it best to leave honey on the hive as long as possible, take it off as soon as it is all sealed over, or tier it up before the sealing has just begun? I am told that unsealed honey ripens much faster than that which is sealed over?"

Years ago, especially, it was only natural for unthinking beekeepers to avoid the work of uncapping the combs, and more pounds of honey could generally be obtained by extracting what had accumulated in the combs every three or four days during a good nectar flow than where the extracting was not done till the most of the honey was sealed over. This course generally brought thin unripe honey to the consumers who soon became prejudiced against all extracted honey. Nothing could have been much more damaging to the sale of extracted honey than this marketing of an unripe article. To obviate this the bee-papers advocated leaving all honey on the hive until it was fully sealed over, the inference being that honey was fully ripened as soon as the cells were all sealed over. But this part depends upon the flow of nectar and the humidity of the atmosphere.

During a bountiful flow of nectar from clover when it rains nearly every night, and there is what is called a "scalding sun" during the day, the bees will rush the honey into the combs pellmell and seal it over before it is really ripe. In fact, at such times I have often had section honey (taken off as soon as capped over, and while the combs were of that snowy whiteness which captivates the eyes of every consumer) so thin that, on cutting the comb twenty-four hours later, it would run about the plate almost like water; and unless the sections were stored in a warm, dry, well-ventilated room to ripen, the cappings would soon have a watery appearance. Then later the soured nectar would leak out, to the disgust of all who had any thing to do with it. I once saw hundreds of cases of such stuff in the basement of a commission house in New York. Under such circumstances as these it is better to store all honey in a room where the temperature holds for four or five weeks at from 75 to 90 degrees F., the honey being piled so that the air can circulate all about and up through the combs. At the end of this time the honey in both sealed and unsealed cells will become so thoroughly ripened that it will not even run out of the unsealed cells, if the combs are laid down.

Then, if preferred, supers of combs for extracting can be tiered up just as the bees begin to seal the first cells, thereby getting the honey away from the brood-nest before much of it is sealed. In this position the bees are slower in capping it—so slow that it often ripens up nicely before the bees get it capped, and thus we are saved the labor of uncapping. Honey ought to be thoroughly ripened before it is extracted from the comb, and it may then be put into cans very soon after it leaves the extractor. To my taste the flavor is much better preserved if the honey is sealed up in a can or barrel than if left open to the air, as many think necessary to ripen it thoroughly.

Where honey is left on the hive for a long time, or in a warm dry room for the proper ripening, cool weather often comes on so that this thick well-ripened honey is hard to extract unless some provision is made for warming the combs. By tiering the hives containing the combs we wish to extract in such a way that they are separated two or more inches from each other in a small tight room in which artificial heat can be applied till the temperature of the whole is raised to 100 degrees, and held there for half a day, honey can be extracted as easily in cold weather as in warm, and in this way stormy weather can be used.

Of course I am writing from the standpoint of central New York. If I am correctly informed, California and many of the southwestern States have an atmosphere where the humidity is so slight that honey comes from the flowers, not as nectar, but almost in a perfect state, so that it often weighs much above that which is considered thoroughly ripened here. Eleven pounds to the gallon used to be considered a fairly good weight, but that would hardly do at the present time. New York requires 11 pounds specific gravity for a gallon of maple syrup, and such syrup is much thinner than any honey I ever could bring myself to think suitable for market. One of the reasons for not making maple syrup heavier than this is that a heavier article will sugar or crystallize in the can. This is something not to be tolerated, as where such sugar syrup is stored in glass jars the result is that the jars are almost always broken in trying to remove it. But with honey, the thicker it is the less liable it is to candy or granulate. Average extracted honey here in central New York runs about 12 lbs. to the gallon. At least after repeated weighing for years, I have been in the habit of filling a quart can and calling it three pounds.

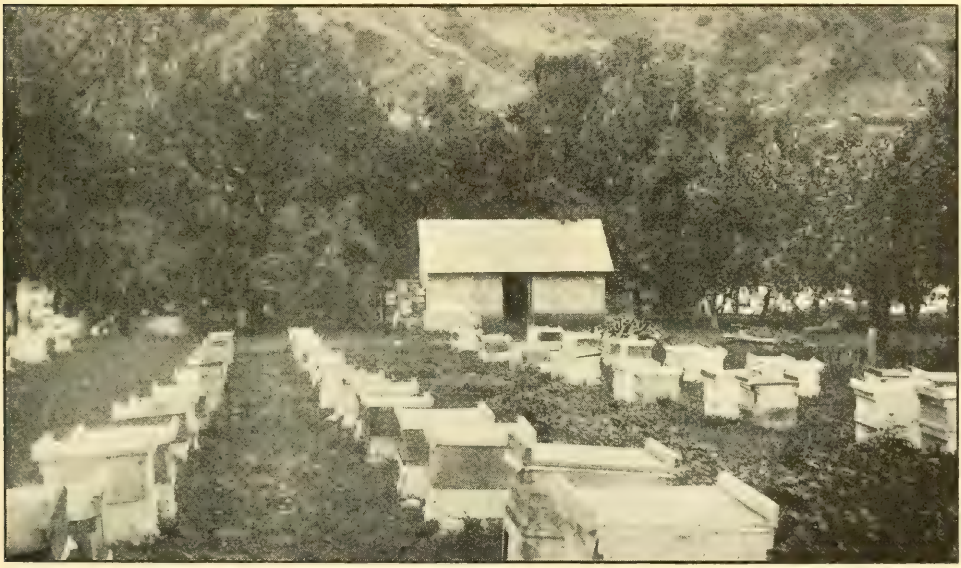
GENERAL CORRESPONDENCE

MARKING AND RECORD-KEEPING

BY FLORA M'INTYRE

[Miss McIntyre is the young woman who paid part of her college expenses by working with the bees. See her article on page 893, Dec. 15, 1913.—Ed.]

The hives in the Sespe apiary are set out in rows, each of which is designated by a letter. The A row is at the extreme left of the extracting-house, and B, C, D, etc., follow in order until we reach the Q row, or thereabout, at the extreme right. The hive places have each a number, beginning with No. 1 at the upper end of each row, proceeding in order down to 25 or less at the path which skirts the lower side of the apiary and passes the extracting-house door. The hives are grouped in twos within the rows, and two single rows placed back to back form a double row. All work is done from the path within the double row.



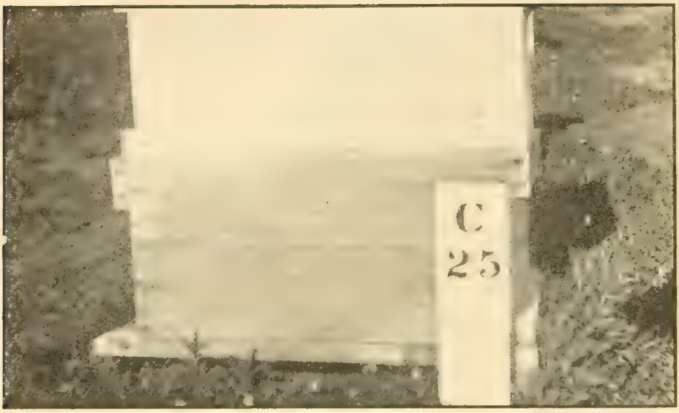
A corner of the "Sespe" apiary, showing the concrete storehouse in the background.

The numbers and letters are stenciled in black on white painted stakes about four inches wide and a foot high, driven into the ground at the lower side of the hives and close to the rear corner. The lower hive in each group of two has the number-stake, as shown in the illustration, the number of the intervening hive being easily ascertained by a glance at the stake above.

The record-book is an ordinary index-book about 4 inches wide and 13 long, with the margins cut to show the letters of the alphabet printed one on each leaf. The record of each single row occupies one double page, or about 8 x 13 inches. The requisite number of columns are ruled off, and the column-headings and hive-numbers written, with pen and ink. The record itself is kept in pencil, a slender pencil with a good eraser on one end being tied securely to the book. A new book is prepared at the beginning of each season, and the record is begun when the bees are first inspected in the spring, being added to and modified as the season advances. The pencil and eraser make it easy to alter a record or transfer it to another part of the book in case a hive is moved and its address thus changed On the next page is a possible record of the B row, showing the system used in making records.

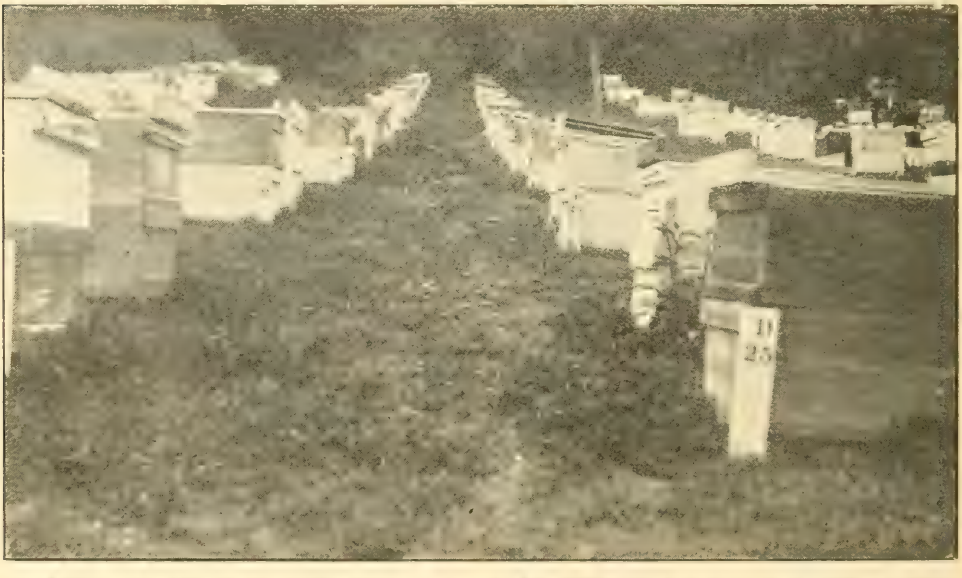
The numbers under "Age" indicate that the queen is in her first or second year as the case may be. Under "Strain" is usually placed the initial letter of the breeder's name from whom the original ancestor of the queen was secured. "Grade" refers also to the queen—X meaning fair; XX good, and XXX very good in size, color, and such other characteristics as can be ascertained from the general condition of the colony. The numbers under "Bees" indicate the number of combs occupied by the bees; while those under "Honey" indicate the approximate number of pounds of honey in the super. Under "Remarks," "Q" stands for queen, of course; "ex." for excluder, and 4-27 is the date on which the "remark" was made.

During that interesting first thorough inspection in the spring every queen is found and clipped, if need be. Her age and grading are then recorded, together with the approximate number of pounds of honey and the number of combs of bees in each hive. The book, which is light, bound with tough paper, and of a size and shape suited to slipping in and out of a pocket, is carried about in the apiary whenever there is any work to be done, and any thing needing attention later is recorded. There are, however, some exceptions to this rule, as, for instance, when there is wholesale feeding to be done, each colony needing it is marked, during the day, with a clod on the cover of the hive, and this is thrown off as the colonies are fed in the evening; also, during the



A close view showing the numbering-stake.

No	Age	Strain	Grade	Bees	Honey	Remarks
1	1		X	5	7	
2	1	K	XX	8	10	
3	1	W	XX	8	20	
4				4	20	Q'less 4-27
5						
6	2		XX	8	10	Q. cells
7	1	W	XXX	8	25	
8	1		X	8	10	
9	1	W	XX	8	7	
10	2	W	XX	6	6	No q. ex.; no cloth, dark
11	1			1	10	Weak
12	1	W	XX	8	15	
13	1	R	XX	8	10	
14	1		XX	5	4	Feed
15	1	W	XX	8	15	
16	1	K	X			
17						
18	1	W	XX	8	10	
19	1		XX	4	3	No q. ex.; black, cross; feed
20	1	R	X	8	10	
21						
22	2	W	XXX	8	25	
23	1			8	10	
24	1			8	10	dark



C and D constitute a double row. Note the convenience and legibility of the number-stakes and the grouping of the hives within the rows.

extracting season the colonies ready to be extracted are marked in the same way, the clods getting dumped off when the hives are opened to secure the honey. No minute record is kept of the amount of honey produced by each colony; but when a hive fills up with noticeable rapidity after being extracted, the fact is noted; and if the performance is repeated consistently throughout the season, such colony will be marked "good for honey," and, perhaps, if other things are favorable, will receive the remark, "breed;" which is the highest honor we have to bestow.

Between the double rows, as, for instance, CD and EF, is a wide space toward which the hives face.

The selection of the few fitted for this honor is undoubtedly the chief object of record-keeping, though convenience and time-saving are to be considered. For instance, here is a colony needing a comb of honey to tide it over. The record shows the nearest hive with plenty to spare. I wish to requeen all colonies having inferior or old queens. The record shows just how many queens are needed, and where. I wish to rear a few queens after the swarming season is over. The record shows what colonies have old queens, and are apt to be superseding, and I look there for royal jelly and bees willing to care for my cells, etc. In fact, the record-book is in such constant use that it is about worn to a "frazzle" by the end of the season, and then it is carefully preserved in the tin box along with insurance policies and the deed to our share of the earth.

From the back pages of an old record-book I copy the following:

3—31 E23 to B18
4—3 B7 to C18
4—3 E9 to D10. O. K. 5—25
4—3 G26 to L27. O. K. 4—21
4—7 K20 to K19. O. K. 4—21
4—7 I21 to L15. O. K. 4—21
4—7 M8 to K8. O. K. 4—21
4—7 B16 to E17. O. K. 5—9
4—7 C6 to D3. O. K. 5—9
4—7 E16 to H16. O. K. 5—25

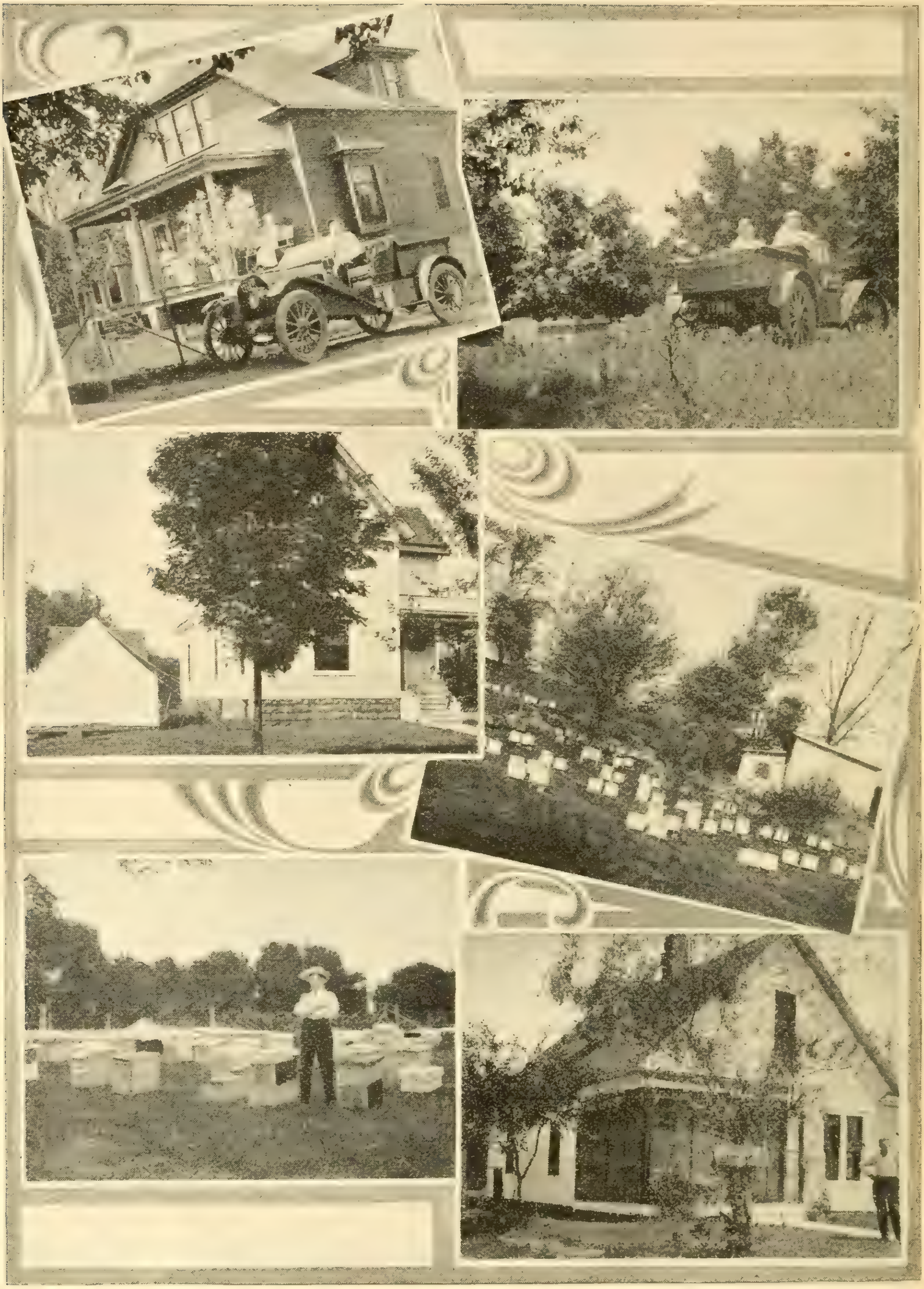
This is the beginning of the swarm-record for 1910. It is a sort of daybook of swarms. The first entry means that on March 31 E23 swarmed with an old queen, and the hive with its brood, bees, and queen-cells was located at B18, the old queen and her swarm being allowed to return to a hive of empty combs at E23.

This record must be kept as the work is done, the necessary changes and additions being made at leisure in the main record. OK 5-25 means that the hive moved to D10 with queen-cells was found on May 25 to have a laying queen. Evidently it was found queenless when the April 21st inspection was made, and had to have another cell.

It is with this part of the record that I have had the longest acquaintance, having begun quite young to watch for swarming; and to indicate the importance attached to records with us, let me tell you one of my childhood's recurrent dreams. I find myself in the orchard toward evening, and discover with a sinking heart a neatly clustered swarm evidently with an unclipped (and therefore virgin) queen hanging to a branch. Then I discover another and another; here, there, everywhere, all through the trees, big swarms, little swarms, medium-sized swarms, all quiet and compactly clustered. Black, heart-sinking despair overcomes me as I realize the utter hopelessness of ever discovering so much as a clue to the origin of a single swarm, when I should have recorded the source of each and every one. Then I wonder how I could have been so careless, and where I could have been when all those swarms were coming out, and finally I awake immensely relieved to find it isn't so. Though it has been a number of years since I watched for swarms, I dream that dream yet sometimes.

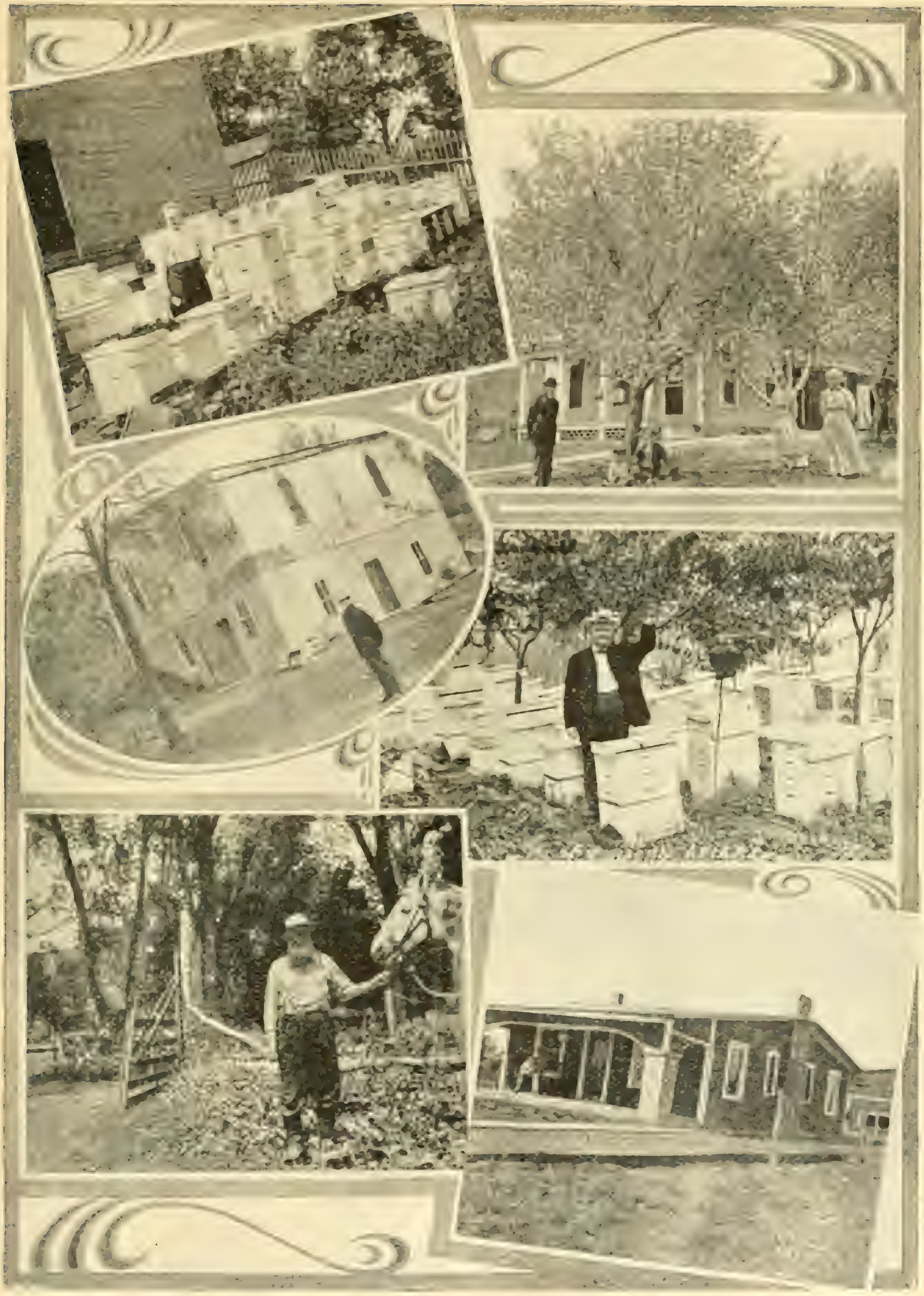
Ventura, Cal.

[The reader should remember that the system of record-keeping here described is the actual system that has been in use for years in one of the largest apiaries in California. Surely more than enough time is saved to compensate for the time required in the keeping of the record.—Ed.]



GLIMPSES OF SOME IOWA BEEKEEPERS. By Frank C. Pellett.

1. Home of E. E. Townsend, Ft. Dodge, Iowa. 2. (To the right, at the top), auto used by E. E. Townsend, Ft. Dodge, for outyard work. 3. Home of J. I. Wiltsie, Arlington, Iowa. 4. Bert A. Brown's apiary, Des Moines, Iowa (a beekeeper who sold $1500 worth of honey from a town lot in 1913). 5. Irving Wernick, Lake City, Iowa (produced $1000 from 40 colonies in 1913). 6. Home of J. H. Meloy, Ft. Dodge, Ia.



GLIMPSES OF SOME IOWA BEEKEEPERS

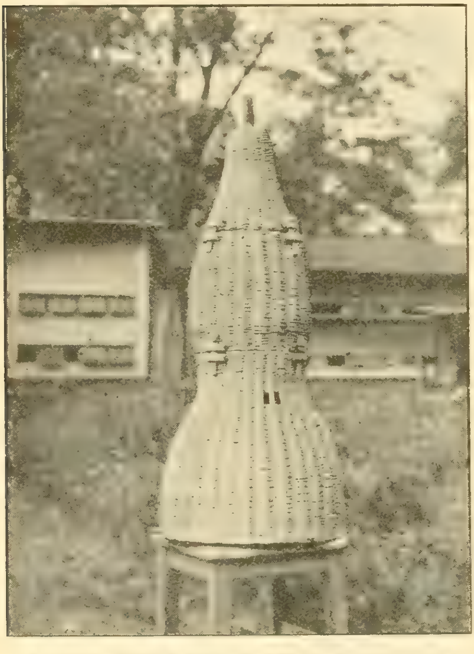
7. J. H. Meloy, Ft. Dodge, keeps 98 colonies in the rear of a town lot. 8. Home of J. L. Strong, Clarinda (50 years a beekeeper). 9. B. A. Aldrich's honey-house at Smithland. The finest equipped honey-house in Iowa. 10. Chris Bach and his apiary at Maquoketa. 11. C. J. Barber, Smithland, Iowa (85 years old, and as spry as a boy); still cares for his large apiary. 12. Home of Walter Reppert, Burlington, Iowa.

THE HIVE IN THE TIME OF ROMAN EMPERORS

BY FRANK RICHTER

As people rose from the first state of savagery to domestic and economical life, the bee followed them from the mountains and forests to the gardens and courts of their new homes. Bee culture advanced step by step with the civilization of men. The first civilized people exercised regular bee culture and made use of its products for their wants.

In the care of bees and the study of their habits the Romans and Greeks stood at the head of all nations. Their great statesmen, poets, and learned men such as Pliny, Hesiod, Virgil, Ovid, Columella, etc., studied bee culture, and only in that way was it possible that, in the time of C. Junius Columella, in the middle of the first century, it rose to the highest state which presupposed knowledge not inferior to those of our time.



A woven beehive such as was used by ancient Romans

Originally the bees lived in trees and caverns until Aristans lodged them in artificial dwellings and thus made an invention which by and by spread over the whole world. The hives first were made of hollow tree-trunks and later of trunks worked out by hand; most of them were of oak-trees; but higher esteemed were hives made of the bark of the cork oak. The contents of such a hive amounted to 648 fists. It was soon found that the capacity of a hive ought to be in proportion to the size of the colony. The back of the hive was provided with a movable partition which not only permitted manipulation from behind, as the beekeepers of that time recommended, but also allowed enlarging the inner space when there was a good honey-flow and plenty of bees.

In time, when work did not thrive, the partition was pushed inside (Columella), and thereby the room diminished in order to prevent the workers from becoming idle or discouraged (Aristotle), or cease working (Pliny). The joints were spread over with cow-dung to prevent drafts of air. Hives made of bark were more highly valued than those of hurdlework (basketwork), (*alous vitilis*). In Italy the flexible and tough twigs of the ferul-shrub were used for twisting. Such hives of hurdlework were certainly better than those of barks or willow-twigs. Hives of willow twigs generally were round, while those of ferul twigs had a quadrangular shape.

In Italy the Romans also used boards for making hives. According to Roman tradition the hives were 3 feet high and a foot broad. They were round, pointed at the top, and drawn in in the middle, so that they resembled the bee in shape. The hive was divided into three separable parts. The top or cover had the form of an inverted cup. The middle piece corresponded to our super, and the bottom part was the brood-chamber. The bottom-board consisted of a disk of basketwork, and it also served to diminish the room in the brood-chamber when it was pushed inside and was fixed by three cleats. Over the hurdlework was spread a mixture of quicklime and cow-dung or slippery cay. According to Varro several entrance-holes were placed in the narrow and upper part of the brood-chamber not in the front, but on the left and right side of the skep. Palladius fixed their number to two or three, and advised that they be small and narrow, not larger than to allow a bee to pass in order to prevent the wind blowing in and noxious insects from entering.

The author of these lines was invited to make a model of such a skep after the description of Varro, for the exhibition in Vienna. Accordingly I made a sketch of the Roman hive and showed it to the beemaster of the beemaster school in Vienna. After having looked at the sketch for a moment he exclaimed: "Well, we have just the same thing in our bee museum." He looked for it; and when he brought it I could easily see that it was exactly the same shape I had designed. It was a skep used up to our days by a colony of Latin-speaking Romans in Transylvania. Professor F. Funke, director of the imperial school of hurdlework (basketwork) in Vienna, had made a model of the sketch, which was shown at the Adria exhibition in the Austrian Imperial Department of Agriculture. Such skeps are still used in the Latin-speaking part of Transylvania and in Bretagne, France.

The inclination of the old Romans to keep bees and to study their nature in order to regulate breeding according to the law of nature, gave occasion to a country squire, as Pliny says (it was a senator, if I am not mistaken), to construct a hive of transparent material, which allowed the beekeeper's eyes to observe the mystery of the life of the bees. The observation hives of the ancient Romans were made of transparent horn, also used for lanterns, or of lapis speculario which was imported from Spain and Cappadocia.

Vienna, Austria.

◆

BANK NOTES ALL GENUINE

BY ARTHUR C. MILLER

Some fruit number, that of February 1. But it is not all a love-feast 'twixt fruitman and beeman. Hereabouts we are moving our bees as far from the orchards as we can get them. What between careless spraying and spraying sweetened poisons for special purposes, an orchard is becoming a bad neighbor for the beekeeper. We will let them go it alone until they get over being stark, staring, poison-mad.

* * *

A chap in North Tonawanda, N. Y., wants to know if winter cases should project below the bottom-board. At the risk of walking all over the editor's very best pet corns I am going to butt in and say yes, certainly. All my winter (and summer) cases project below the bottom-board to the extent that the joint between the hive and "floor" (say "floor," boys—shorter, and does not remind one of youthful "paddlings") is protected by the case. Then all drip stays outside—much nicer than having it creep inside. You'd be sure of it if you had to sit on the floor. [We agree with you.—Ed.]

* * *

Ventilated escape-boards sound very good to me—gives me a freedom-from-care feeling. When one puts on the escapes to be left for perhaps a week before the honey can be taken off—as at some outyard—one worries a bit if a spell of blistering hot weather shows up. And, by the way, I never could understand why all escape-boards have been made with little more than a bee-space on the top side and none on the under. Use half an inch on each side and you will discover another improvement.

* * *

Summing up city beekeeping, the editor says, satisfactory city beekeeping *rests* entirely with the beekeeper. Never hit the nail squarer on the head. Some city beekeepers (and others) are great "resters."

* * *

Some folks never do learn discretion. Dr. Miller and "E. R." have been butting in on bees' winter sleep, and saying they (the bees) do not fan in winter, and somebody said something. Don't you children yet know that when you want to meddle in such things you should ask Allen Latham first? When Allen says so, 'tis so—usually.

* * *

Necessity is, etc. One of those days when nothing seemed to hitch, and fingers were all thumbs and bees all stings, I cut into a fine queen-cell which I particularly did not want to lose. Say any thing? No use. I just tried to patch it up, but I knew jolly well what the bees would do with that patch, and I had no cell-protector—at least they were all in hiding. In pawing over things, looking for one, I tumbled down a piece of super foundation—just a small strip, rather dusty, and more or less soft, and I wound it snugly around that cell and pinched it together over the base, and tucked it down into a nucleus. The blessed little bees fastened the edges down, and the queen hatched like any other. Why did I do it? Nobody knows—just an inspiration; but I discovered that a bit of foundation is the most perfect cell-protector ever invented. The bees seem to think(?) the cell is on the other fellow's side of the comb, and never try to cut through. Foolish little bees!

* * *

Do you like gardening? enjoy transplanting things? every try transplanting baby queens? Neat little trick. Suppose you find a cluster of cells from some choice queen that had departed or merely died. The cells are so bunched that several of them must be destroyed in saving the others. Hunt up some old cells; those that have hatched are all right. Lay them in the sun to warm up a bit, then cut them nearly in two squarely across and near the base where there is no cocoon. Now carefully open one of the cells, which must be destroyed; gently spill the white inert queen into the palm of your hand; hold the old cell against your palm so the opened butt will be in front of the queen, and let her slide in gently. Close the cell; wrap it in foundation, letting the latter cover the tip—it is better if the old cap is adhering—tuck it into a nucleus, and in due time you will have your queen. Never mind watering after transplanting; they won't wilt.

* * *

Wesley Foster will be getting himself disloved 'long with some others if he does not quit talking home-made supplies. It is a good deal of an art to know what *not* to have made at the planing-mill and box-shop, and at the carpenter's down the lane, and out in the woodshed. But at the risk of getting into an awful mess I should like to ask Wesley how the manufacturers using automatic machines which turn out thousands of frames a day can figure a charge of $35.00 for a thousand of them when there is less than 220 feet of "scrap stock" in them. Yep, scrap stock—all made from short lengths and edgings.

* * *

The March *American Bee Journal* has a picture of a man scorching out a hive while the inspector watches him. Looks like a Rhode Island coat of arms, only here 'tis one man at work and three looking on. But just remember that paint or common thin machine oil is an equally good sterilizer. Scrape off the lumps of wax and propolis —as you should do before using the torch— and then apply your paint or oil. Plain kerosene (coal oil) is all right, only it takes it a long time to "unsmell."

* * *

When the doctors disagree, there is apt to be trouble somewhere. Dr. Miller gets a crop which breaks all records. Mr. Greiner wants to "double the yield," and Mr. Holtermann is bemoaning the fact that he can't sell what he has. Guess I won't meddle.

* * *

Did you see the front cover of the March *American Bee Journal?* Fine picture of doll-houses and dog-kennels and washing-machines and bird-cages. It is labeled an "Exhibition of Hives at Chalon-sur-Saone." But what is in a name? Guess I know a dog-house when I see it. No wonder the "furriners" cannot compete with us at bee-keeping if they keep bees in such things—should not think any self-respecting bee would stay.

* * *

A friend (oh, yes! I have some) sent me the following. He did not say what paper he got it from, so I cannot give credit, but it is worth preserving.

HOW DOTH THE LITTLE BUSY BEE?

(A bee culturist tells us that five dollars' worth of bees kept in a city flat will manufacture a hundred dollars' worth of honey in a year.)

On learning that a herd of bees
Could be sent forth to loot
The florists' shops and grocery stores
That deal in fancy fruit,
I bought a swarm and housed them
On my kitchen window-sill,
That they might journey out
And ply their piracy at will.

"Go, little bees," I said to them,
"I care not where you roam,
Just so you prove industrious,
And bring the honey home."
A while they labored joyously—
A real delight to see;
'Twas very pleasant to observe
How hard they worked for me.

But soon the gladsome spring-time came,
And shortly after that
Queer things began to happen
In our one-time tranquil flat.
For when we put the windows up
We found, to our surprise,
Instead of going out to work
They grafted our supplies!

We found them in the sugar-bowl,
And in the currant jam;
They buzzed about the champagne sauce
We poured upon the ham.
Our cat was much annoyed at this,
And sought to interfere,
But after he'd attacked one bee
He went away from here.

That evening I discovered
What had happened to the cat.
And subsequent to this event
Was careful where I sat.
At lunch, when Uncle Ephraim
Went to get a hasty snack,
He innocently bit a bee,
Which viciously bit back.

"They're trying to get rid of me,"
I heard him sadly mutter;
"They're puttin' poisoned needles
In their uncle's bread and butter!"
The injured way he looks at me
Now haunts me in my sleep,
And if you want a fleet of bees
I'll let you have them cheap!

* * *

Dr. Miller says that bees do not put differently colored pollen in the same cell or different grades of honey in the same cell—Straws, March 15. Phew, doctor! Do you have but one color of pollen in your locality, or one color of honey? Hereabouts a cell of pollen split lengthwise often looks almost like a rainbow. As for honeys being mixed —why, they are often, or perhaps always, mixed when the bees of a colony are working on more than one source. It has been proved beyond doubt. But this is not a good locality, if you please.

Providence, R. I.

VALUE OF SHEEP TO KEEP DOWN THE GRASS AMONG THE HIVES

BY A. J. HALTER

The excessive growth of grass and weeds is a menace in an apiary, often requiring hours of arduous labor to check an undesirable crop. This is especially true where a large number of colonies are placed in a comparatively small space. The immediate growth in front of entrances causes confusion among bees; and to remove the same it becomes necessary to get down on your knees to be in position to do justice. However the more sacred your appearance may assume, the more relentless the behavior of the bees; for if there is any mercy shown by them it certainly does not manifest itself when a person is in this position in front of a hive.

The past season, Mr. W. C. Ritchie, of Hudson, O., where my outyard is located, purchased a large number of sheep, among which were five rams, four of this number being prepared for market. At first these rams were penned in a small lot adjacent to the outyard, and during the night had access to the hives. Later, however, upon merits of good behavior they were entirely at liberty. This yard, comprising about ¼ acre, contained a vigorous growth of grass, asters, elderberry bushes, and various fruit-trees. In the course of several weeks the rams had made a fair clean-up of grass and weeds, and began to pull off the lower branches of the elders, peeling the bark of the larger stems. Later this appetite led to peeling peach-trees, so that it became necessary to place burlap around them.

Every thing seemed harmonious. During the period of warm weather the rams would seek the shade during the day, and graze during the night. Their craving for leaves and shrubbery did not recede; and when the

Some sheep which kept the grass cropped short in an apiary of 123 hives.

clean-up was nearing its end they became very restless, and occasionally would move or overturn a hive. The bees, however, did not resent their presence in front of the entrance unless the hive was disturbed. In one instance I had occasion to witness the performance of the largest of the five, the ultimate result of brushing aside a colony of bees. When he was stung on the head he ran; and when stung on the legs it was "kick;" and while his disposition at times could not be trusted (being his delight to bunt), I took refuge, seeking a point of view until his intense anger had subsided.

The rams were all removed before the bees were prepared for winter, at which time the ground was rather barren, this being a most desirable feature, as grass and weeds only harbor mice that often become destructive during winter.

This experience saved me many hours of labor in a yard of 123 colonies, and I feel the work would not have been so complete had I attempted it myself. Instead I enjoyed several afternoons fishing. Another season I hope to try this plan with ewes, they being more inclined to be contented.

Akron, Ohio.

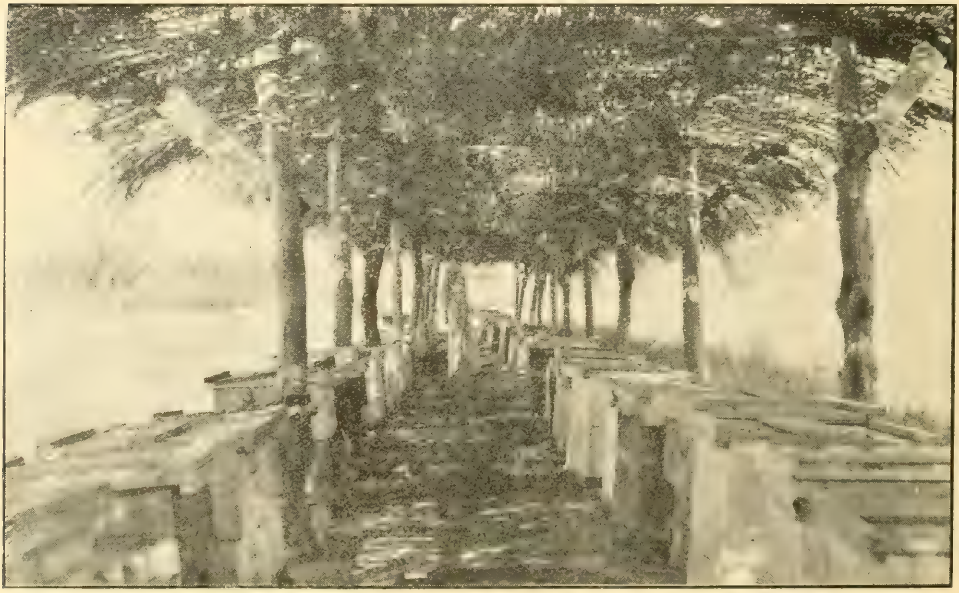
THE EVOLUTION OF THE BEE-SHED IN ARIZONA

BY W. H. M'CORMICK

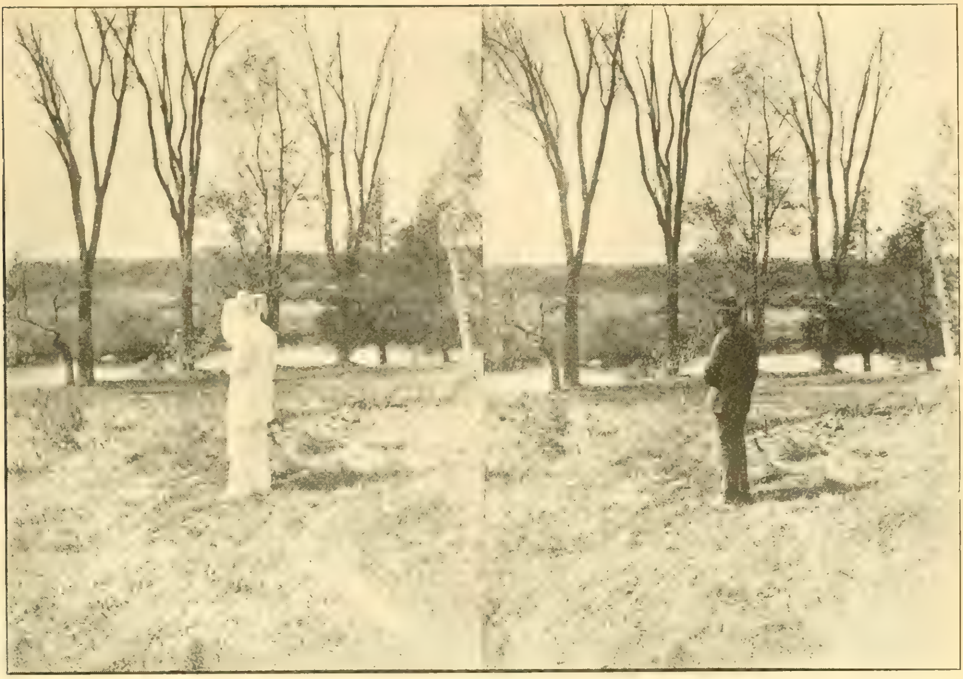
During the year 1896 I bought some bees a few miles from Phoenix, Arizona. Acting on the advice of the man who sold them to me I located them in a grove of large cottonwood-trees. The only method of increase I knew of then was swarming. Before the season was over I had considerable experience in climbing trees with a saw and rope. Since then, when I've kept bees, it has always been under a shed.

At that time most Arizona beekeepers built their sheds of poles and posts. Forked posts were set in the ground. Then poles enough were laid across them to hold the brush up. Then I heard of some one who "built a barbed-wire fence flatwise, put it on stilts, tied the ends down, and piled brush on top." I don't know who discovered that it was not necessary to sink any except the end posts and the anchor posts in the ground. Perhaps some one's posts rotted off, and it occurred to him to nail braces from the posts to the cap.

I got the ideas for the plan of shed shown in the engraving from a shed built by Mr. Wm. Chambers, of Phoenix. It seems to me the strongest and most economical shed I have seen. The wires that hold the brush from blowing off are not shown. Sometimes none are needed; but occasionally it is necessary to use two or three. All depends on the material used and the location. When



Bee-shed in Arizona, made by stretching wires across the tops of the posts and laying brush over them.



A beekeeper dressed wholly in white is less conspicuous than one dressed in black.

used they are stretched over the top of the brush, and are fastened to the anchor logs. They may be tied to the under wires with baling wire. The posts should be sunk four feet in the ground. While the wire is being stretched it is necessary to have braces from the anchor-logs to the caps of the end bents. One must be careful not to have the shed too low. Twelve feet is wide enough. Eleven feet is good, and ten feet will do.

In this country we always build sheds from east to west. Perhaps it is a little better to slant them a little from southeast to northwest. The morning sun will not melt down new combs, but the evening sun may. All intermediate bents are built like the end bents, except that they are of lighter material, and are not set in the ground.

This style of shed has one advantage that I have never seen noted in print. Few bees fly through the shed. Bees going behind their hives fly over the shed. It is often hard to make strangers understand that they are safer between the hives than they are a few yards in front of them.

Parker, Ariz.

◆

DO BEES DISLIKE BLACK?

BY JOHN H. LOVELL

The world itself is not wider than the belief that angry bees will sting black sooner than white. The other day in an old number of GLEANINGS I found Mr. Louis H. Scholl saying: "Our experience teaches us to wear lighter-colored apparel with a good veil, and thus prevent stirring up the ire of the busy little workers who make for us a living, instead of allowing them to kill themselves uselessly on any thing they do not like." From the antipodes of South Africa a few weeks ago came the exceedingly interesting and convincing account of Mr. W. G. Davis, describing how in the Transvaal bees on the rampage attacked and killed domestic animals which were wholly or partially black, while the lighter-colored ones escaped with only a few stings. When he wore lighter-colored clothing himself the bees troubled him very little. To the query, "Why do bees sting black?" he replies that it is because it is foreign to them. "There are no black flowers for the bees to work on, and black is, consequently, foreign to them; while, on the other hand, there are plenty of yellow and white flowers that they are constantly working on, hence their frenzy to sting the former color." We shall return to this idea later.

It has been suggested that it is the roughness or hairiness of the object which offends the bees and not its color. It seemed desirable to test this view by experiment. On Sept. 15 I donned an entirely white suit, including a white veil. On the upper side of my right arm there was a band of black paper so smooth that the bees could not cling to it. When I removed the cover of one of the hives, the tap, tap, tap, of the bees against the black paper sounded not unlike hailstones on a roof. The left white sleeve was almost wholly unnoticed. As bees have been observed to discriminate against black feathers, fur, felt, glass, cloth, and paper, it can not be the quality of the material which provokes the greater number of stings.

We present two photographs, one of a beekeeper dressed wholly in white, including a white veil and a straw hat, and another of a beekeeper in a black alpaca suit wearing a black hat and veil. It is clear that the black figure is the more conspicuous, and offers a greater contrast to the general landscape. The white figure contrasts much less strongly with the grass, the water, the sky, and the foliage of the trees; and yet the contrast is greater than it is, in fact, for the foliage of the trees in the photograph is darker than in nature. In the case of the black dress the part on which the sun is shining appears less dark than it is in reality. Both photographs were taken in the bright sunlight at 10 o'clock. Should both of these figures threaten a home of the honeybee, it is not difficult to understand how the black clothing would attract the greater attention. Put yourself in the place of the bee. Suppose you heard the call to repel invaders resound through the hive, and you hastened forth, not knowing what you would encounter. Would not that ominous black object challenge your attack? Its very unlikeness to the colors with which you were familiar would render it the more conspicuous. Would you not " jab " it without hesitation?

The question was raised by a young friend whether, if I wore a black suit with a white band around my right arm, the contrast of the white against the black would not be very marked, and whether the bees might not possibly sting the white band just as, previously, they had stung the black one. While I could not see how this could render the black any the less conspicuous, yet it seemed worth trying. The natural expectation would be, of course, that the larger black surface would be more severely assailed. However, I went down into the apiary in a black suit with a white band of cotton cloth, six inches wide, around my right arm. When I opened the first hive, the bees attacked my pants and sleeves, but not the white band. This hive contained fairly gentle bees.

The bees in the second hive opened were exceedingly cross. When I lifted the cover the attack was really terrific. My pants, sleeves, and veil were assailed in great numbers; but the white band was almost wholly ignored. Some four or five bees penetrated beneath my veil, compelling me to retreat. But I could not rid myself of them. They followed me to the barn and into it, and I finally escaped only by throwing aside my coat and veil. I had this same morning, while dressed in white, opened this hive two or three times without any special inconvenience; but the black seemed to arouse the bees to frenzy.

If I could I would print it in letters a foot long—*Wear white when working among your bees.* I know of nothing among minor matters of beekeeping which will add more to your comfort and convenience.

At first thought it might seem as though black irritates bees in the same manner that red enrages a bull. But the evidence proves that this is not so. An angry bull will attack a red garment lying upon the ground as fiercely as when it is worn by a human being. Many a person, indeed, has escaped injury by dropping a red shawl or a red parasol. But a black garment suspended from a pole in the apiary or thrown on the ground receives no attention from the bees; and they will gather honey from black paper as readily as from white. Furthermore, the anger of the bull against red is in no way dependent on locality; but bees do not attack black animals at a long distance from the beeyard. Finally, since a black object absorbs all the rays of light, the physical cause of irritation, waves of ether, is absent. Therefore, bees do not feel any hostility toward black for its own sake. Black alone will not excite their anger. It must be accompanied by something else—namely, it must be worn by a living animal or human being near the beeyard, and the bees must be angry, irritated either by the object in black or by some other cause.

And now in closing, just a word in regard to Mr. Davis' idea that bees sting black because it is foreign or strange to them. It is true that black very rarely occurs among our wild flowers, although some species have black centers; and *Bartsia*, in Switzerland, has black blossoms, while black pansies and tulips occur under cultivation. But the fields are green in summer and white in winter; the foliage of most trees is green in summer; and of the deciduous trees, red and yellow in autumn; the sky is blue and the rivers and lakes are green. Even the buildings are usually white, yellow, or red. The unlikeness of black, the marked contrast which it offers to the prevailing colors in nature, its strangeness, render it the more conspicuous; and it is this conspicuousness, distinctness, apparent projection in relief against the general background, that causes it, *under the conditions described above,* to receive a greater number of stings than white.

Waldoboro, Maine.

[The following report from M. F. Freeborn is given herewith as an additional proof that bees do discriminate against black.—Ed.]

On one occasion when I was overhauling a colony back of my store my smoker was not working satisfactorily. I was unable to give much smoke. They proved very active, and swarmed out until the air was full of bees. Suddenly I observed a great commotion among my chickens. The Rhode Island Reds were in the air with the bees, and were terror-struck and crazed with stings. I stopped manipulating the hive and drove the poultry into the house and shut them in, a great number of bees still clinging to them. They were frantic. They flew against the door and windows, burst through, and were in the air again, and finally over the fence and under a large building which stood very close to the ground, so that a man could not get under it, so I had to abandon trying to save them, and closed the hive and let things quiet down.

That afternoon one of my neighbors picked up five hens, terribly stung, with heads badly swollen, and placed them in a small coop, more dead than alive. Next morning four of them had died. The other finally recovered; and three days after, two hens crawled out from under the building, and I nursed them back to life. The fifth day a poor Rhode Island Red rooster had crawled to the edge of the building where I could reach and pull him out.

The strangest thing about this affair is that my white Leghorns were unharmed. They flew about in the excitement, but seemed to be immune to attack by the bees. If this does not demonstrate that bees are attracted by color instinct, then I don't know what stronger evidence could be produced. Not a white hen was disturbed; but the poor Buttercup and Rhode Island Reds were unmercifully attacked

Nantucket, Mass. M. E. Freeborn.

STREAM OF WATER FROM A HOSE TO MAKE A SWARM CLUSTER

BY C. P. HENRY

I am sending a picture of my apiary of 40 colonies on a city lot in Hugo, Okla. I wintered on summer stands without the loss of a single colony. Some of my neighbors lost as high as 40 per cent. You will notice shade-boards on the front row. I placed these there to show how I treat my little pets, for which kindness they pay me well, as I realized a little better than $6.00 per colony last year, including increase

My hose is shown, which I use to control swarms. It certainly works well. I herded a swarm and made it settle on the particular tree I desired to-day. Mrs. Henry does not like bees the best in the world, but had sufficient nerve for this performance.

In the background shows my supply-house and empty hives and supers.

Hugo, Okla.

C. P. Henry's apiary of 40 colonies at the back of a lot in Hugo, Okla.

A FURTHER GLIMPSE OF MOUNTAIN LIFE IN NORWAY

BY HAROLD HOVIND

I have been an honorary member of the North American Beekeepers' Association since January 28, 1893. I was before and after that time the editor of our Norwegian bee-paper (*Tidsskrift for Biskjotsel*) for some 18 years. I thought perhaps you knew it, therefore I did not write about it in my last letter to you; but as you published that letter in GLEANINGS, p. 117, Feb. 1, I may tell it now, and present myself as an unworthy brother in the craft to the American beekeepers—the most progressive beekeepers of the world. It was my duty to introduce myself to my American brethren of bee lore long ago. Perhaps they will excuse me, and kindly take the hand I now extend them. We go to the American beekeepers for our best instructions.

Large stone kept according to the ways of the old Norwegian vikings (sea-kings), a custom still perpetuated to some extent.

Thinking that perhaps it may interest you to see some of picturesque Norway I send you two views. The larger engraving [cover picture for this issue.—ED.] is a most beautiful view, I think, taken from the corner of a little house on the mountain side opposite our own home.

The smaller picture represents an old Norwegian custom. In commemoration of memorable events the old Norwegian vikings or sea-kings in times long past raised big stones called banta, and carved them, so we do the same yet.

It is indeed edifying in the highest degree to see how many kind, warm-hearted people there are in the world. In consequence of my last letter, which you published, I have received many letters from America and Australia, full of kind words, and sending me some of their seeds, books, and papers, samples of honey, and samples of maple sugar, photographs, and one a beautiful arrowhead of stone probably found in an old Indian grave. I do not know how to thank these good friends giving such tokens of kindness to a stranger in a foreign country far up under the pole in the "land of the midnight sun." I have often had the opportunity of seeing that all such hobbies as bees, fowls, and other sorts of animals, etc., are the greatest blessing; for they bring people of all classes together in friendship and brotherly understanding, giving a foretaste of the time when there shall be love and good will among all men. Some of my truest friends and greatest joys I owe to such hobbies. Therefore we cannot do enough to encourage them in our children.

There are some misprints in my former hurried letter; but it does not matter much; but I have not two fruit-trees but a hundred though they are yet very small.

Tvedestrand, Norway.

* * *

THE PEACE OF A DREAM.

BY GRACE ALLEN

I am worn with the roar of the street,
I am tired with the tire of the town,
Where the noise and the heat seem to bruise me and beat,
And the smoke is an insolent frown.
But a mile or two out to the west
There's a hive or two under the trees,
And my feet take their quest to the quiet and rest
Of the rapturous hum of the bees.
For they go and they come and they go
In the magic and might of a song;
And the gentle hours glow, and my soul and I know
It's the peace of a dream, dreamed strong.

WINTERING BEES IN MINNESOTA

Read before the Minnesota Beekeepers' Association Dec. 4, 1913

BY L. D. LEONARD

When beekeeping is conducted on a business basis, the hit-and-miss plan, under which most beekeeping is carried on to-day, will have to be relegated to the past. Why is it that one beekeeper manages his apiary in one way and another one in an entirely different manner? Simply because he has not yet established any system that is recognized as applying universally to beekeeping in Minnesota. If we wish to do all we can to further this industry, thereby adding to the wealth and prestige of ourselves and the State, we must begin to settle upon some fundamental principles regarding methods to be practiced here.

Our conditions in Minnesota are so different from those further south, where it is warmer most of the time, and where the winters are less severe, that we must necessarily make our own rules and do our own experimenting if we would be successful. I believe it will not be long now before a text-book will be constructed and published by our State apiarist wherein the best methods for us in this Northwest will be set forth. If such a book is gotten up I have no doubt that the individual members of the Minnesota Beekeepers' Association will be called upon to contribute from their past experience such facts as they may know beyond a question. I am going to forestall my invitation to write a text-chapter, and give it to you to-day—"How to winter bees in Minnesota."

The time to commence wintering bees in Minnesota is August 15th. At this time the bees will have been resting for at least two weeks. All the light honey will have been ripened, and should be removed from the hive by this time, if not before, whether in supers or brood-chamber, excepting frames with brood in them, thus making room in the hive for fall brood-rearing. For thirty days, or until Sept. 15, there should always be empty combs in the brood-chamber.

At this time, Aug. 15, every hive should have a feeder permanently attached, so that the sugar syrup can be fed any day or every day if nectar is not coming in from the fields. The object is to keep brood-rearing steadily going on for the next thirty days. In twenty-one days, or on Sept. 5, the young bees will be emerging from the cells in response to this feeding, too late in the season to wear themselves out working in the fields, consequently in the best condition to carry the colony through the long winter. This feeding kept up for thirty days, or until Sept. 15, will bring the hatching season to a practical close on Oct. 5, with a hive full of young bees.

In the mean time, for ten days after Sept. 15, let the bees rest. Don't feed or disturb them in any way; but on Sept. 25 go through the hives, estimate how much sugar syrup each colony will need to carry it through the winter—the authorities say 25 to 30 pounds—then feed *all at once* whatever is needed. Syrup fed warm at this time should be made of two parts of sugar to one of water, with a little cream of tartar. Thus feeding will be over by the first of October, after which the bees should be let alone until the time for removing to the cellar.

By this method you have accomplished two important things: 1. Extracted *all* of the salable honey while wintering the bees on dark honey or dark honey mixed with sugar syrup, which improves it for wintering purposes. And, by the way, if you are an up-to-date business man you will feed granulated sugar, damaged for table purposes, but all right for winter stores, which may be had for 2½ cts.[*] per pound.

Now that I have outlined the method for feeding which I think best to use in Minnesota, I wish to describe the hive arrangements which I think are best adapted to our conditions.

THE HIVE AND ITS ARRANGEMENT.

The ideal hive is not yet invented—the one good for all purposes such as producing a large number of bees when we want them, getting the most out of them in the matter of honey production and for wintering purposes. I know, however, that experimentation is going to be made next summer with some new hives, the principles of which are entirely different from these now in use. However, the hives we now have ought to be made the most of since we have them, which I think the beekeepers are not doing at the present time.

The hive-bodies and the frames are the only parts of the hives in general use that are fit to have a place in Minnesota. The single flat cover and the ordinary bottom-boards are, in my estimation, not fit, and should either be thrown away entirely or modified to suit our conditions. As regards the cover I shall only say that every hive should have a telescope cover reaching down as near the bottom of the hive as possible, with an inner cover with a ⅜-inch space between the two, and a canvas over the frames in cold weather. This arrangement tends to keep an even temperature in the hive in hot weather as well as cold, and will save wrapping of hives in spring and fall to keep them from sudden changes in temperature, which is one of the very important things to guard against.

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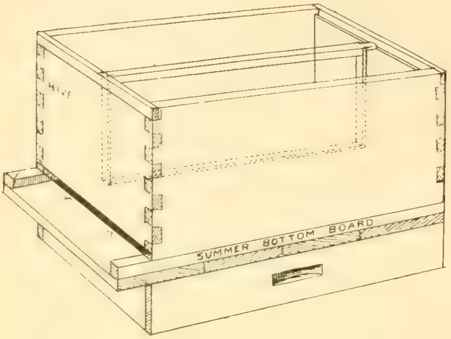
[*] Such a price does not prevail now, of course.—Ed.



I cannot lay too much stress upon this cover for the hives, for to me it seems only secondary to the hive itself. Bees can stand a vast amount of heat; but cold drives them into a cluster immediately, with consequent inactivity, hence the need of this telescope cover to equalize the temperature in the hives, thereby making it possible for the bees to spread out over the frames of brood at all times.

The bottom-boards in use at the present time are positively the greatest detriment to successful wintering in Minnesota of all the fixtures we have among our hive appliances. Such bottom-boards should be used only during the honey-flow, say from the middle of May to the middle of August, and should never be used in cold weather. Of this I will go more into detail presently.

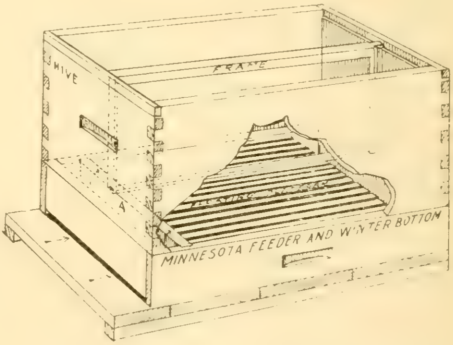
I have said before that every hive should have a feeder attached Aug. 15. Now, this does not mean that one kind of feeder is just as good as another, because that is not true. I like best a plain box feeder, the same size as the hive and 3½ inches deep, placed under the hive-body. At the front of this feeder is a partition one inch back from the end wall, and coming up flush with the top of the feeder, practically touching the frames as they hang in the hive. This makes an inch-wide space, the width of the hive, running from the frames down to the bottom-board entrance. This arrangement makes the feeder practically robber proof, as stranger bees coming into the hive must go up among the frames before they can reach the syrup. You can readily see how easy it is for the bees to defend such an entrance.

In the bottom of the feeder place a carefully fitted piece of wire screen just wide enough to spring into the lower corners on each side and round up to the top of the feeder in the center. For the eight-frame hive size it takes a strip 14 inches wide and just long enough to fit the feeder absolutely. Care must be taken that no bee can get under this screen. This is the best float I have ever seen, simple, inexpensive, and easily removed.

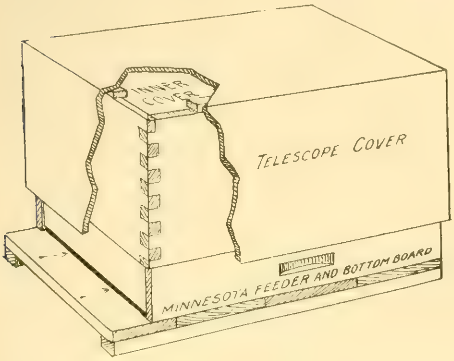
This feeder can easily be made in combination with a bottom-board by extending the bottom two or three inches beyond the front end and nailing cleats on the under side, which, when the feeder is turned bottom side up, will make the ordinary bottom-board, while the 3½-inch-deep feeder itself, now underneath, makes a fine hive-stand.

After this feeder is turned up and brought into play on the 15th of August it should not again be changed until warm weather next spring. I venture to say that nine-tenths of the beekeepers would say, "When all feeding is done Oct. 1, turn the feeder down and set the hive on the regular bottom-board, thus making the hive warmer." There is where they would make a mistake. It is not shallow space under the frames that keeps bees warm. It has just the opposite effect. It keeps them cold by crowding them up among frames filled with winter stores, spreading them out in thin layers until those on the outer edge perish in great numbers.

Within the empty box, 3½ inches deep, all snug and tight under the frames, with no chance for cold air to sweep under from front to rear, as with the ordinary bottom-board, the bees will cluster and hang down, as it is their nature to do, and none will be crowded out for lack of room. Thus will



they cluster all winter long, slowly moving from side to side and end to end of the hive as they feed on the stores above. Thus will they cluster in the spring, only gradually spreading out as warm weather comes on and the brood increases in the frames. After it is settled warm weather we may turn this box feeder over and use the regular bottom-board again, but not before. This bottom-board and feeder combined I am going to name the Minnesota bottom and feeder. It originated here, and is, in my estimation, the best feeder and bottom that has yet been invented. The combination is simple, convenient, and inexpensive; and, best of all, it gives the bees a warm space below the frames in which to cluster in a natural manner during cold weather.



After feeding is over, the hive-body and the feeder bottom should be fastened together and the bees left to themselves to settle down gradually to the winter cluster until about Nov. 1, when they should be removed to the cellar. Do not wait for "just one more day" on which the bees will fly. If you do you will probably lose more bees on that day than you would in a month if they were in the cellar; and, besides, they consume more of their winter stores when outside. When the real cold weather comes, whether it is in the latter part of October or the first part of November, the bees should be removed to winter quarters where they can remain quiet.

REQUIREMENTS OF A GOOD CELLAR.

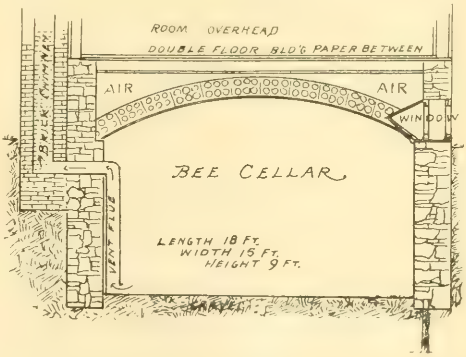
This brings me naturally to the question of the kind of cellar best suited to wintering bees. I cannot introduce the subject of cellar construction in a better manner than by telling you how my own cellar is made, for I have what I think is a model. First, it is not under a part of the house that is heated. It is under the shop. It might as well be away from any building whatever if it were protected on top from moisture.

No bee-cellar should be where artificial heat can reach it. It should be made so deep, and be protected so well, that it will not freeze in the longest and coldest winters we are likely to have. Also, it should not heat up in the mildest weather. In other words we should have a cellar that will not change in temperature more than fifteen degrees from summer to winter; and what change takes place should be very gradual.

The floor of my shop, which is the top of my cellar, is double-boarded, with building paper between, over six-inch joist, with building paper and matched lumber nailed to the under side. The side walls are made of limestone, 18 inches thick, 10 ft. deep. The floor is sand. A brick chimney for ventilation has its opening within a few inches of the floor. A window at one side three feet below the surface of the ground opens into a light-well which is capable of being packed with leaves or straw in the coldest weather. This window has three sashes to make more air-spaces and greater warmth. So far, with a few minor differences, this plan probably describes hundreds of cellars in Minnesota. However, this is not yet fit for wintering bees, and here is where the great mistake is made.

AN ARCH IN THE CEILING MADE OF ABSORBING MATERIAL.

In my cellar I have made an arch of double-air-spaced pyrobar blocks, starting 6½ feet from the floor, resting on a shelf in the side walls, and just reaching the ceiling in the center. This pyrobar is made of asbestos and plaster of Paris, and is easily handled. It is the next thing to proof against heat or cold; and if dry overhead it will absorb and evaporate a large amount of moisture from the cellar. I cannot conceive how this material could be improved upon for overhead protection.



Upon placing the hives in the cellar, the telescope cover should be removed, the inner cover and canvas raised at the rear end of the hive, and a piece of section placed across each corner, thus providing for top ventilation. Pile one hive directly on top of another. Leave windows and ventilators open until the temperature reaches 40 degrees, then gradually close up but do not allow the temperature to rise above this point if it can be helped, until they are set out again in the spring.

In the winter of 1911—one of the coldest winters we ever had in Minnesota—I had only fifteen colonies—not enough to create any heat of themselves in the cellar. The thermometer stood at 45 degrees when they were put in about the first of November. From this time to Jan. 15 the temperature gradually lowered until it stood at 32 degrees in the bottom of the cellar. There it remained the rest of the winter; and when I removed the bees about the first of April, with the temperature outside warm enough for flight of bees, the thermometer still registered 34 degrees in the cellar, a rise of only two degrees.

Every colony was in fine condition, with very few dead bees on the cellar bottom. In 1912, with 25 colonies it was the same story except that the thermometer stood at 34 degrees all winter instead of 32. This year (1913), since putting in 95 colonies the first part of November, the temperature has been exceedingly mild outside; yet the thermometer which registered 48 degrees the day after putting in has not at any time risen to more than 50 degrees (Dec. 1913).

Winter losses of bees in Minnesota have been altogether too great in the past. We must find some way to overcome this; and, judging by my experience the last two winters, with hives full of young bees and with sufficient stores, with a snug warm space under the frames in which to cluster, and a cellar constructed on scientific principles, I believe we have gone quite a way toward solving the problem.

Minneapolis, Minn.

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STIMULATIVE FEEDING SHOULD BE DONE IN THE FALL

BY D. M. MACDONALD

Whenever this question is brought up for discussion we must recognize that a considerable amount of diversity of opinion prevails among beekeepers as to the how, why, where, and when this operation should be carried out. Many who look upon themselves as good and successful beekeepers underdo feeding; others overdo it, while very many entirely neglect it, even when taught by bitter experience that feeding would pay both cost and labor. Oblivious of the fact that the undertaking, timely attended to, or either overlooked or done out of season, may spell either success or failure, they go on sacrificing thousands of stocks yearly, and, of course, this means thousands of pounds which, but for pusillanimity, gross carelessness, or simply forgetfulness, might well go into the purses of men who could well accept more than they now receive. The question is broader and deeper than even this one of pounds or dollars because beekeepers are often content with weak or medium stocks when they might have nine out of ten of these laggards right in line with their best colonies, provided they gave even a modicum of thought and intelligence to the question of stimulation at the right time and in the right way. The broad rules apply equally on both sides of the Atlantic, although some minor points of difference may crop up with you and with us, chiefly owing to locality and the various sources of supply yielding in late fall.

When we come to the direct question of stimulative feeding to promote breeding, and provide our stocks with more bees and stronger forces, we discover a distinct cleavage of opinion. There is a marked line of demarcation, and we encounter two schools of thought whose beliefs and practices are diametrically opposed. I have been reading up all the authors on your side in my possession—upward of a score—and I find the above holds good. Both sides are emphatic in promulgating their own opinions, and frequently are intolerant of those of their opponents. Our literature shows as much diversity, and the doctrines are as forcibly asserted and maintained.

Here are two brief tenets embracing the whole matter in a nutshell. First, Dr. Miller writes in Gleanings for December, page 837, " I don't believe I ever gained by stimulative feeding." In "Alexander's Writings," p. 30, Mr. A. asserts, " I know of only one way to secure a good working force, and that is by stimulative feeding." Nothing can, apparently, reconcile these two divergent statements; they are like the two poles, as widely sundered as possible. Yet, as I have said, I can produce evidence from twenty prominent beekeepers, or leading writers of our bee literature, supporting both statements, and most of them clinch their theoretical statements by producing actual practical facts—conclusions deduced from evidence accumulated in the course of their long experiences among the bees—the very best source from which reliable knowledge can be derived. Here is evidence facing us, much of it to be found in the pages of GLEANINGS during the twenty years I have been a diligent student of its pages. The one series of quotations (with which I will not burden your readers) positively confirm the negative statement I have quoted above, while the others, of no less bulk, wholeheartedly confirm the affirmative. Practically my own conclusion is that both are right, and, paradoxical though it may sound, both are wrong.

My friend Dr. Miller must excuse the bluntness of my assertion that he is wrong, because I hope to prove it; and I have two other reasons at least modifying the force of the contradiction. It is partly balanced by the statement that he is *right,* and, further, he has looked at only one side of the shield before declaring of what material it is made. I think he really means *spring* stimulation, which is another thing. His " ever " is, therefore, too emphatic and too sweeping. Again, Dr. Miller does not speak for the " school;" he is really recording a personal opinion. Another point is that Dr. Miller is a comb-honey producer (and a champion at that, as his average of 267 sections clearly testifies). I, too, work for comb honey, and I never stimulate in a general way, because I find that, without doing so, working for a late flow, as I mainly do, it would work evil and not good, bringing my bees to the crest of the wave at far too early a date for my late flow from the heather.

I know all that can be said against spring stimulation, and will refer to some points later; but meanwhile I will take the negative statement quoted above as a type of that school of beekeepers.

Stimulating bees does pay, and it pays well. I will at present specify three conditions under which it will prove a boon and a blessing to both bees and their keepers who practice it. First, sugar can be turned into *bees.* I feel certain the small lots ladled out and placed on combs or foundation, each headed by a young fertile queen, a young virgin, or a nearly ripe queen-cell, about which the editor wrote not so long ago when describing the Root yard for increase, profited immensely by the steady stimulative flow considered an essential factor in helping them toward development. Don't we all, when making up small lots with two or three frames, stimulate? We work them up all through summer and early autumn, stimulatively, to turn the syrup into young bees to encourage queens to lay as rapidly as possible, and to secure not only more combs but also food sufficient for winter stores. I assert that, but for the stimulation to cause breeding, these originally small lots would never be able to winter successfully as independent units. Here is a case where stimulative feeding is, indeed, the determining factor between success and failure. The " profit " is almost entirely due to the syrup fed.

Secondly, given a weakling with a well-known prolific queen covering only one or two frames in early summer, I will take in hand to work it up to first-class form for my full flow, mainly by stimulation. Obviously it is suffering from a paucity of bees; and, likely, many of these are old bees. Adding more *old* bees from another weakling, as is generally done, would be a waste of labor. Give it a frame of just-hatching brood, or two if you can afford it, and you supply one of the elements hitherto wanting; *viz.,* nurse bees. The other factor necessary to success is stimulation. Your prolific queen lays thousands of eggs under the stimulus of the slow but steady increase, and the just-hatched bees are there to care for them in the larval stage. Here is another instance of the blessing of stimulation.

Thirdly, this autumn stimulation is *the* occasion where stimulative feeding works marvels, not only for the time being, but for the entire year following. Perhaps neither Dr. Miller nor myself have benefited much from this autumn stimulation, being comb-honey men, and because of being blessed with a late flow. Indeed, some years I have too much honey in the brood-body in September. The case is different with "extracted" hives, where the surplus has absorbed all but the entire fruits of the fall honey-flow and the brood-body is left with little if any winter stores.

Now, taking it for granted that in autumn every light colony must be fed less or more —some only a few pounds, others ten, and yet others twenty pounds, the question arises how we are to feed them to secure the most profit. Bearing in mind that young bees are an essential to successful wintering, and of no less value in safe " springing," let us get these by autumn stimulation. The syrup slowly fed encourages breeding, as the steady flow keeps up the vitality of the queen right on from the cessation of the natural flow until we deem it time for her to cease laying. I am presuming that only ounces have been allowed daily during this period of stimulation, and that little if any of it has been stored, all of it going to make bees, or to keep the workers living from hand to mouth, without any meddling with sealed stores. This slow feeding with its regulated supply is withdrawn from the hive, and a rapid feeder substituted. A large one is best because then the shortage of the 30 lbs. necessary to supply the winter stores can be given quickly, thus avoiding the agitation consequent on rapid feeding for any lengthened period. What we have secured is a powerful stock, the majority of the bees being young and full of energy when genial spring calls them forth after their long period of semi-hibernation to profit by each shining hour when nectar is to be had.

Experience teaches me more and more, as the years flit by, that it is a "faithful saying," and worthy of universal acceptation, that we should do all our spring feeding in autumn. "Millions of honey in our house," as Doolittle puts it, is the very best guarantee that the bees will breed up in late spring and early summer to take full advantage of the clover or other main flow during June and July, when flowers yield most copiously.

In very many districts the season is over by the end of the latter month, and *then* comes the period when we can best and most profitably stimulate. Here is where I find myself in most divergent difference with the genial doctor, which leads me to dissent from his "ever" profiting by stimulation. It will also be seen that this development considerably differs from the "only way" in the Alexander book. I agree it is a *way*—not the only way—but the time makes a vast difference because there is not the great loss of bee-life almost certain in most springs, which, in the majority of seasons, more than counterbalances the gain.

Banff, Scotland.

HOW EUROPEAN FOUL BROOD SPREADS

Several Methods of Cure Considered

BY DR. C. C. MILLER

Dr. C. C. Miller:—I am having an experience with European foul brood which isn't agreeable. It isn't my first, but it *is* my worst, because it is knocking such fine crop prospects. If I were a beginner I should expect to be puzzled; but having made nuclei by the hundreds, and having been a shipper of bees by carloads for years, I must admit that trouble with disease knocks my conceit considerably.

The orthodox method of cure is requeening with Italians. But I have some Italians purchased of an excellent breeder last August, and the same per cent of them contract disease as the others. Now, my question is, Do any of your hybrids or Italians actually prove immune? and did you try shaking as a cure?

I believe I know the way it spreads. My bees are in pairs; and if one of a pair shows disease, the ones on the corresponding side of each adjoining pair soon show it lightly, and then it starts down a row. Now, I believe the nurse bees lick up the larval food from dead larvæ, go out to play, enter the wrong hive, feed larvæ, and start disease.

I put a very yellow Italian queen into a weak colony that had been queenless for more than three weeks without strengthening the colony, so as to observe results. All colonies on either side were dark bees. Within seven days after the Italian bees began to hatch I found yellow bees in hives on each side of the colony as far away as three hives. This bunch wasn't placed in pairs, so I missed part of the experiment.

Another question: Can you kill the queen in a fairly strong colony containing disease not too bad, give an Italian cell the same day, and expect good results? I am shaking all foul colonies, and carrying away the brood to avoid spread of disease. I really don't shake, but allow the flying bees to return to the queen and leave the rest with the brood. When I have worked out my experiments I'll wrtie them up in GLEANINGS if they are successful.

California.

To say that "the orthodox method of cure is requeening with Italians" is putting it a little too strong. To be sure, at least one writer has reported a *large per cent* of cure as a result of requeening with young Italian queens, and some seem to talk just a little as if one doesn't need to entertain the unwelcome European guest at all if one only has pure Italian stock; yet I think the most that is really claimed in general is that with Italian stock the disease is easier to keep at bay, and easier to cure when acquired, than it is with black or hybrid stock. And I believe that is in general true.

IMMUNITY.

You ask the straight question whether any of my hybrids or Italians prove immune. I don't know. Some of both kinds have remained free from disease; but how do I know that they have had a fair chance to become infected? Take the best of them, and introduce a frame of diseased brood, and I don't know whether or not they would become diseased. I suspect they would. Still, I have had them lightly affected, and then become sound without any treatment that I know of. That looks just a bit like bordering on immunity. If European foul brood should rage in a certain locality a few millenniums—possibly a few decades—I should expect the survivors to become nearly if not quite immune. And I should expect Italians to be more nearly immune than hybrids. One reason for that is that Italians are in general more vigorous than blacks or hybrids. It is just possible that is the only reason. It is also possible that Italians are more nearly immune independently of the matter of vigor, just as a weakly man may be immune to smallpox while a man of great strength succumbs to it, merely because one has been vaccinated and the other not. It is possible that Italians have been through an experience nearly equivalent to vaccination. So my answer to your question is that I don't know whether any of my bees are immune to European foul brood, but I think not; and that, so far as I have observed, I have had no proof that there is any difference as to immunity between Italians and hybrids.

THE SHAKING METHOD.

"Did I try shaking as a cure?" Didn't I? Hundreds of empty frames boiled in lye, and not yet filled again with combs, are mute reminders of the many combs that were shaken and the colonies that were treated after the most orthodox manner of shaking. But never again any melting-up of combs for me on account of European foul brood. It is a wanton waste entirely unjustified.

BEES GETTING INTO THE WRONG HIVES.

Your observations as to the mixing of bees in neighboring hives are interesting and important. Their importance relates to the introduction of queens rather than to disease. And right here I must make the rather humiliating confession that, while I was familiar with the fact of such mixing, I had always been of the opinion that it was the older rather than the younger bees that did the mixing. Your very yellow bees going astray when only seven days old is something of a settler on that point. The special point of importance with regard to introduction is this: When one has an apiary of dark bees, and introduces an Italian queen into one of his colonies, and then finds dark bees among the young bees of the colony with the Italian queen, he should be very sure no young bees have entered from other colonies before condemning his Italian queen as impure.

Another point of importance other than its relation to disease is your observation as to bees mixing when hives are in pairs—especially interesting to me as the father of the idea of placing hives in pairs. You say, "If one of a pair shows disease the ones on the corresponding side of each adjoining pair soon shows it lightly." For the sake of beginners, let me explain that more fully. In my apiary the hives are in pairs. No. 1 stands as close to No. 2 as it can without touching. Then there is a liberal space between 2 and 3; 3 and 4 are close together in a pair; then a space between 4 and 5, and 5 and 6 are in a pair. A bee belonging to No. 3 will not make the mistake of entering No. 2 or No. 4. If it goes wrong at all it will enter No. 1 or No. 5, because No. 1 and No. 5 are on the same side of the pair as its own hive, and so look more like its own hive than either No. 2 or No. 4. From the center of No. 1 to the center of No. 3 is a little less than 6 feet; likewise all the other pairs are the same distance apart. Now suppose we place the hives singly at what we consider the most desirable distance apart. According to what has been said, if we now put another hive beside each hive already placed, there will be no more danger of bees entering the wrong hive than if we had left the hives single. In other words, putting the hives in pairs enables us to get *twice as many* on the same ground as placing them singly.

In actual practice the likelihood is that there will be less mixing with hives in pairs than when placed singly, simply because one is likely to give more room to a pair than to a single hive.

What you say about the way the disease is spread looks reasonable. Yet I am bound to say that my observations last year do not corroborate any too strongly that view. In May there were 16 cases of the disease scattered among my 83 colonies. According to your observation one would expect that, before the season was ended, the number should have been doubled or trebled. In fact, there were only 8 more fresh cases during the entire season. I am wondering if it may not be that my pairs were further apart than yours.

At any rate, it is safe to say that, where the disease appears, strong emphasis should be put upon the importance of spacing hives well apart, *and of putting them in pairs.* For putting them in pairs on the same area of ground just doubles our security against mixing and thus spreading the disease.

INSERTING A QUEEN-CELL OF ITALIAN STOCK SAME DAY THE OLD QUEEN IS KILLED.

Replying to your question, if you kill the queen in a fairly strong colony not badly diseased, and give a cell of good Italian stock the same day, I should expect a cure with few exceptions; and a virgin just hatched might be as good. But in a mild case, if the queen is good it is not desirable to kill her. In a bad case the queen is likely to be poor, and should be killed; but in a mild case she is not affected. I didn't kill a queen in any case last year. In a few cases I did as you say—took away all brood and young bees, allowing the old bees to fly back to the queen; but I gave some brood from healthy colonies, though I don't like the plan as well as the one I used in the majority of cases.

That plan was (keep in mind that the cases were mild) to cage the queen and leave her in the hive for eight or ten days before releasing her. That sounds simple, and it *was* simple—just caging the queen for eight or ten days—that's all. An average of a little more than 266 sections per colony from the 72 colonies, spring count, devoted to sections, is pretty fair endorsement of the plan.

Don't think, however, that I got no punishment for having European foul brood. The average for the diseased colonies that worked on sections was 232.29 each; for the colonies that showed no disease it was 272 or more. Even 232 sections per colony shows that one may do pretty well in spite of European foul brood.

Marengo, Ill.

HONEY-CROP CONDITIONS IN COLORADO

BY WESLEY FOSTER

There will not be anywhere near the amount of honey shipped from Colorado this year as last. The crop will not total more than 60 per cent of last year's shipments. The Arkansas Valley has not had a good crop generally. Around the western and upper end of the valley the reports are favorable—about Cañon City. In the Orday and Rocky Ford district a very light crop is reported. Little honey is being secured in Bent County, while Prowers County makes a fair report.

In the South Platte Valley a light crop to no crop at all is harvested. Northern Colorado has had a poor to good crop. In the Grand Valley, from Glenwood Springs to Fruita, there will not be over 25 per cent of the honey secured last year.

Montrose and Delta counties will have a small crop, probably 50 to 60 per cent of last year.

Southwestern Colorado will have a fair crop if the season holds on long enough. The worms that were so troublesome in Montrose and Delta counties were very destructive also in the Montezuma Valley. They attacked the sweet clover in great numbers; but during the middle part of August they disappeared.

Northern New Mexico, close to the southwestern Colorado line, is having a fair flow from sweet clover.

Prices should materially stiffen when it is found how little shipping honey Colorado will produce this year in comparison with last.

My report in August 1st GLEANINGS was written about July 9, and was the best I knew at that time. I missed the actual conditions a good deal. The one who tries to give crop conditions before August 15 in Colorado is guessing on the crop, although he may get the prospects and conditions fairly accurate.

Boulder, Colo.

FEEDING TO CAUSE SELECT DRONES TO FLY WHEN YOUNG QUEENS ARE READY TO MATE

BY MAJOR SHALLARD

I recently noticed in the *American Bee Journal* an account of some mating-stations for queens in (I think) Switzerland. The queens were sent to these places for fertilization by choice drones, and returned when mated. Are these mating-stations necessary? I think not. Irrespective of the cost of transmitting to and from these places, I think (in fact, I am sure) that queens are damaged by transmission through the mails, and I should think the cost of any other means of carriage would be too expensive to be practicable.

Another argument against these stations is that such go-ahead people as your own have not adopted them. That the control of mating is under reasonable restraint is proved by the high percentage of purely mated queens obtained by the breeders. Just how far queens go from home I do not know; but I am firmly convinced by my own experience that they are very largely mated to drones from their own apiary. I will give an instance which tends to prove this.

When I first came here I was the only one in the place who had Italian bees, and they were a source of interest to the people about, who had never seen yellow bees before. The people round about had a few boxes of black bees, and the trees also had a share. Under these circumstances, unless my queens were fertilized by drones from my own hives they must necessarily meet black ones; but my percentage was fully 75 per cent purely mated. I have also been successful in mating queens to special drones, but under exceptional conditions. By keeping the queens in the mating-hives with a piece of excluder metal until 5 P. M., and then stimulating the hives containing the drones with a little warm syrup, I have been quite successful in getting them into the air together at a time when no other drones were flying. By adopting this method I have mated Italian queens to Cyprian drones, although I had only half a dozen of the latter in the yard. I was exceptionally well situated to prove that mating could be controlled under these circumstances; but although I was isolated from all other yellow bees I was not from black ones. If I wanted to rear any very choice queens, and wished to be absolutely sure of what they mated with, I kept the drones in a queenless hive until all the other drones were gone; and by rearing queens thus late in the season I got them mated to those drones because there were no others. If, then, it is possible to govern the mating of queens as well as this, where is the need of mating-stations?

South Woodburn, N. S. W., Aus., Feb. 2.

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STORES IN HIVES

BY R. F. HOLTERMANN

On page 407, June 1, P. C. Chadwick has some very valuable material in connection with the relationship between the strength of colonies and the amount of stores they have. There are, perhaps, many specialists in beekeeping to whom it is not necessary to point out that, if the bees and queen are to do the maximum of brood-rearing, they must be unstinted in stores. It is not only necessary that the colony have sufficient stores for their immediate requirements, but they must have more. This is particularly true of Italian and black bees. For some years I have seen that the best spring stimulative feeding the bees can get is ample stores in the autumn previous, and then the bees, in all our northern country, packed until the clover flow. The stores and the warm hive, warm every day and every night, will keep the bees rearing brood to an extent realized only by contrasting them with unpacked colonies meagerly supplied with stores.

Where there are plenty of stores and warm brood-chambers the only thing desirable to stimulate brood-rearing is to bruise a patch of honey when the bees are not gathering from natural sources.

I remember an incident of some fifteen years ago where a man had some bees in eight-frame Langstroth hives which he had managed according to some of the best methods, which meant getting all the honey in the supers, and leaving the brood-chamber fairly bare of honey at the close, and with comparatively little pollen, the result of a queen laying eggs, and the pollen in the average locality pretty well confined to a narrow circle about the brood-chamber. Then the colony was fed sugar syrup for winter in the quantity generally prescribed at that time. The following spring was one unfavorable for the bees. There were many cold days, and the bees did not have much opportunity for gathering pollen or nectar, and we should only expect, with unpacked hives added, that these colonies did not build up very rapidly.

The same man had decided to test a house-apiary, and, to equip it with bees, bought some ten or more colonies in what we in Canada know as the twelve-frame Jones hive. It was a frame about 15 inches deep; and, owing to a let-alone policy, or owing to the size of the frame and brood-chamber, it had plenty of stores. The result was that the bees in the house-apiary gave results away ahead of those outside; but in my estimation this proved nothing in favor of running bees in a house-apiary.

Probably Mr. Chadwick is correct about colonies with ample stores responding to stimulative feeding. Honey should never be fed back, for fear of foul brood. Sugar syrup is not the best food for brood-rearing, and by the latter feeding the best results cannot be obtained. As Mr. Chadwick says, "Much honey is required to produce young bees, and this should be figured on every year when leaving the supply of stores for the following season may or may not give sufficient stores. I have had some pretty expensive lessons in providing stores from bees, and pursued the penny-wise-and-pound-foolish policy which many have advocated in the past, of estimating how few stores would bring the bees through winter.

PASTING LABELS.

One more comment upon the June 1st issue—Frank Pease, in connection with putting paste on labels. I know of no better way of doing this than to take a metal sheet, brush the paste over the surface, then drop the labels on it, and as you pick them off, the label should have enough paste to stick it.

Brantford, Canada.

WHAT TO DO WITH UNFINISHED SECTIONS

BY A. C. GILBERT

Undoubtedly there will be more partly filled sections, or sections of uncapped honey this season than for years past in consequence of the poor season. After extracting the honey from all such it is a good plan to save all the clean ones containing nice white combs for baits another season. After extracting the honey from them some beekeepers do not advise letting the bees rob the honey still left in them. As a general rule they contain more honey than ever thought of. Just set two dozen on the scales before and after feeding out, and note the difference in weight. It is surprising to see the amount of honey some contain. To keep such sections until they are needed, without turning more or less damp and dripping, is impossible unless kept in a very dry room kept warm most of the time. Not every beekeeper has such a desirable place, and consequently it is far the best practice to let the bees rob out whatever honey they may contain, then they will keep in any ordinary room or honey-house without being kept warm. When not fed out I have seen some sections turn so wet that the wood becomes damp. Nectar stored in such would not keep like that in nice dry combs.

There is not the least danger of starting robbing if the feeding is done carefully and in the right way. I think the best way is to close the entrance so that only one or two bees can pass at one time. The hives or supers containing the sections should be somewhat isolated from the apiary. Strange as it may appear, one or two colonies generally do the robbing when only a couple of stacks of supers are placed out. Such colonies should be watched as the combs will soon become clogged with honey from one hive. I took out half the combs containing the least brood, and placed frames of foundation in their places. The foundation was drawn and filled with thick honey, mostly capped, as white as snow. The second set of frames of foundation was drawn and filled completely, and as white as the nicest combs during a shower of white clover or basswood honey. Have the sections so that the bees can have access to all parts. It is a good plan to set them in supers a little distance apart on slats or cleats; then if any honey happens to be on any part while extracting it will all be cleaned off, and the job will be complete and satisfactory every way.

Honeoye Falls, N. Y., Aug. 20.

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AN IMPORTANT HONEY-PLANT OF KENTUCKY

Aster lateriflorus var. *thyrsoideus* (Gray), Sheldon, mistaken for white-flowered goldenrod, *Solidago bicolor*

BY BURTON N. GATES

This showy aster, whose name is somewhat in dispute, although given by Gray as it appears above, is credited as being found from New England to Ontario, Montana to Tennessee. It is now reported by Mr. James S. Johnson, of Langnau, Ky., who sent the writer early in September, 1913, a specimen for analysis. A determination has been made by Prof. A. V. Osmun, of the Botanical Department of the Massachusetts Agricultural College. It should be stated that this plant was described by Mr. Johnson as a particularly important honey-plant which he called *Solidago bicolor,* in his previous article, mentioned below. It is, however, not a goldenrod or *Solidago,* but an aster. The varietal form spoken of here is one of the many varieties of *Aster lateriflorus* (L), Britton, which abounds in fields and thickets commonly from Nova Scotia to Ontario and southwest, blooming from August to October. It is extensively variable. Mr. Johnson mentions in GLEANINGS for 1912, pages 798-800, some of the more important features of this plant as a honey source. In recent communications he adds that he has sent specimens of the plant to almost every State, to Mexico, and Canada, believing that it may be valuable to the beekeeper who desires a late nectar-flow. He mentions the vigor of the plant despite the continued drouth of about four months in Kentucky, and gives full details in his recent article, p. 465, June 15. In his locality the plant begins to yield nectar about the 15th of September, lasting almost until November.

Beekeepers in the range of this plant might well determine whether their bees can utilize it. Coming so late in the season, and being a free nectar-yielder brings it into prominence for apiculture.

Amherst, Mass., Oct. 3.

Heads of Grain from Different Fields

THE BACKLOT BUZZER

When you read in the paper about these new-made fortunes takin' wing, you don't think much about it, but when your new five-dollar queen gets tired of your foolin' manipulations and does the same, you do.

A Modification of the Somerford Method of Making Increase

My bees are in the more mountainous section of Western North Carolina, where we have the fruit-blossoms in the latter part of April, and whitewood (poplar) about the middle of May. It was my intention to raise a few queens and make increase of some twenty hives about the first of April; but for several reasons I was unable to get the time, and put it off until May 10 when I found that quite a number of hives had contracted the swarming fever, and upon going over the hives I found that ten of them had swarmed and in many cases queens had hatched. Of course this condition could have been avoided had I been on the ground; but as I am 150 miles off I misjudged the season, as I learned from the condition of the bees. Wintering was splendid, blossoms were earlier than usual, and I was rather backward As my time was limited I decided, upon finding the conditions as they were, to make a small increase in this way: I merely went to those hives which had sealed queen-cells and cut them all out, saving from each hive one fine cell; and, taking this frame and one other and placing them in the center of a prepared hive and replacing them in the old hive with frames of foundation, first having located the queen and shaking most of the bees before the new hive which I had placed close beside the old one, I then placed a super with full sheets of foundation on the old hive and left it in position. Now, as soon as most of the shaken bees entered the new hive I closed the entrance tight with grass and moved it to a new location some 30 feet distant and left the entrance closed for about three hours. I then removed the grass and contracted the entrance to about one-fourth, and found that in two hours from the time I removed the grass a few bees were bringing in pollen, and quite a good many were bringing in honey. The whitewood had just begun, and the bees were very busy on it. I judge that about half the bees shaken returned to the old hive; but upon investigation after the fifth day I found the new colonies about as busy as any of them. The old hives in four out of nine cases were working splendidly in the supers placed on five days before.

I tried the experiment a little differently with one hive as follows: This hive was very strong, but had not contracted the swarming fever so far as I could detect, only a few young drones unsealed being in the hive, though the hive was filled to the tenth frame with brood. I selected a fine queen-cell from another hive, took this and three frames of brood and placed them in a new hive as I did in the other cases; located the queen, and shook most of the bees before the new hive and proceeded to put the old hive in shape and placed a super as I did on the others. I then closed, as I thought, the entrance to this hive as I did the others; but upon returning after three or four hours I found that I had, without knowing it, slipped the hive forward on its bottom-board until the hive overlapped the side strips forming the entrance about ¾ of an inch. Upon examination I found that nothing but young bees were on the combs, and not enough of them to keep the brood warm, I feared, as it was getting very cool that day, and, as it turned out, went nearly to forty that night. I took the frames out of this hive and gave them to two hives I had made the day before, as I did not consider the operation successful. The colony from which I took the brood, with the exception of the frame containing a queen-cell which I destroyed upon giving the frame to the new colony (made the day before) immediately commenced work in the supers. After placing supers and getting my bees in condition so I could leave them a few weeks I returned to this city. With the exception mentioned, all the new colonies were doing splendidly one week after they were "made."

Our honey crop consists of whitewood, sourwood, aster, the season coming respectively.

Knoxville, Tenn., May 29. JOHN EWBANK.

Trouble with the Smoke Method of Introducing.

My bees this season are certainly not normal or else their education has been badly neglected. In attempting to requeen and Italianize a new apiary I stumbled on to some nuts that were hard to crack. Some colonies especially persisted in refusing queens by the mailing-cage method, no matter how they were prepared. Some, queenless for weeks, repeatedly balled their would-be foster mother, and even destroyed virgins hatched in their own hive—these from protected cells.

The Miller smoke method was then tried, with no better success, and we have come to the conclusion many things happen that are apparently inexplicable, even if we have been beekeepers for forty years.

This season nearly the entire work was turned over to my associate, an enthusiastic beginner and a painstaking one. When the last queens arrived, two colonies were hopelessly queenless; the others were dequeened in the early afternoon, and the new queens were run in at dusk. All details were carried out strictly according to directions by Miller. So particular was the operator that his watch was placed on the hives he was manipulating. Method was this: The hive was dequeened; and in a few hours, or as soon as the bees had settled down, a few puffs of cool smoke were forced into the hive, which was then closed for 15 or 20 seconds (Miller's instructions). The new queen had been removed from the mailing-cage, and placed in a Miller introducing-cage, which cage was easily pushed into the entrance, and the queen readily entered. The hive was then closed for twenty minutes, and the entrance partially opened. The first two hopelessly queenless ones accepted their queens and workers. From the next two, the workers began carrying out the attendants of the queen in 20 or 30 minutes. This was contrary to reports made by Miller, and we concluded something had been overlooked.

The next lot was treated the same way, but after smoking and closing the hive a good rapping was given it. In each and every case the bees roared and were certainly much distressed. So much for instructions. It made no material difference, as workers and queens were lugged out before morning, so that, out of the entire lot, we saved but two. Up to now these two colonies have not yet destroyed the queens or workers. Can you blame us for being dubious, or are we wrong in our manipulations?

Queens we are ordering to-day will be introduced by the caged-comb method. This is the only method with which we have been successful this season. Cages used were about 4 x 5, placed on an old comb, the new queen and some workers in the cage. In some instances the queen has laid, although caged, and in no instance have we had any losses to report by this method.

Portland, Ore., Aug. 10. E. J. LADD.

This was referred to Mr. Miller, who replies:

Did you ever notice that the strange, the weird, the uncanny, always happens to the novice? Your professional queen-men succeed in thousands of cases, while Mr. Ladd's novice fails in his few.

From Mr. Ladd's letter I judge the novice has missed much by striving to be over-particular. I have carefuly studied his two letters, and I think the trouble probably is due to too much smoke, for one thing.

His statement of "colonies queenless for weeks" means very poor beekeeping. From what he says of balled queens, destroyed virgins, etc., I would diagnose it as too much meddling. I have been through all those experiences, and they were due to my interference. I do not have such trouble nowadays because I am too busy.

As to acceptance of the queen and the non-destruction of cells, if they had been left undisturbed they would have been destroyed later, usually just before the young queen begins to color.

As to loss of queen when introducing a few hours after dequeening, a novice rarely, except by accident, gets out a queen without a lot of disturbance, and the colony does not settle down in a few hours. They may be quieter; but my advice as given (to novices) is, wait about twelve hours or over night.

I have instructed many persons in bee culture, and the proportion who have the faculty to see and grasp the essentials is exceedingly small. Only to-day I was in a yard in a bad turmoil over a severe case of robbing. The owner and another experienced man and three beginners were there, and I had a splendid demonstration of how one man fails to see, when shown, conditions glaringly patent to others. It was a yard of thirty or more full colonies and many nuclei, and was about the liveliest bee-spot I ever got into. It was chaos, and dangerous. Before I finished, quiet reigned; every colony was successfully defending itself, and I had no difficulty in running a queen into a queenless colony recently badly robbed; and knowing and showing, without opening, that queen was accepted.

There is very much too much overhauling of bees; and bad matters, as in the above yard, are often made worse thereby, and it is quite unnecessary. I was shown two colonies said to be hopelessly queenless (had been examined half an hour before), and one of them had been stripped of every scrap of food, all larvæ sucked dry and pulled out, and even sealed cells torn open, and the young partially consumed. I looked at the entrances for a few moments, and then knew one had a fertile queen, and felt sure of the other as soon as I looked at the tops of the frames, and then I showed them the queens.

Any one can do the same if he will study the behavior of the bee; and then we shall have less freak happenings. I will write this experience up for you soon, as it is too valuable to be lost.

I suggest to Mr. Ladd that he have his novice do less overhauling, and try less smoke—just as little as will make them roar, and postpone his introduction of queens to the next day after dequeening. He was working with blacks and hybrids; and even the expert does not find such queens any too readily; and I suspect that the novice, though never so enthusiastic, "started something."

Providence, R. I., Aug. 30. ARTHUR C. MILLER.

Tin Spout for Trapping Robbers in the Hive They are Robbing.

On page 648, Aug. 15, I notice the plan for stopping robbing and disposing of robbers. Last fall (1913) I discovered that the bees were robbing a weak colony. I went to the shop, cut a thin board just right to fit over the entrance, bored a ¾-inch hole through it close to one edge, ran a tin spout through the hole, ¾ inch in diameter at one end and ¼ at the other. I pushed the spout in at the entrance (the deep side of the bottom-board was up), shoved the board up snug against the entrance, and tacked it fast. The field bees and robbers fairly tumbled over one another to get through the spout. In a short time not a robber was to be seen in the camp. I left them there until the robbers united with the colony, then turned them loose. It left that colony too strong to be robbed.

St. Joseph, Mo., Aug. 21. S. A. MATSON.

A Suggestion for Avoiding Confusion in Apiarian Terms

In regard to Dr. Miller's "Straw" on page 447, June 15, on Smith's and Jones' honey, I have a suggestion to make that I think will work well if made a rule. The number of pounds of honey should have the letters x or c added to indicate whether it is extracted or comb honey; *e. g.,* Smith gets 50c pounds of honey per colony, and Jones gets 60x pounds per colony. In reading these statements the letter indicating the kind of honey is not *read;* it is *seen,* and conveys the information without its being spoken unless you are reading aloud for another's benefit.

In writing of foul brood also confusion usually exists because the reader does not know what variety of foul brood is being discussed. It seems to me that it would be well to adopt as a rule that the initial indicating the kind of foul brood be placed before the word: Smith has lost half his bees with E. foul brood. Jones has a few cases of A. foul brood in his apiary.

(REV.) ALSON W. STEERS.

Nooksack, Wash., June 24.

A. I. Root | OUR HOMES

Thou shalt not kill.—Ex. 20:13.

Love ye your enemies, and do good and lend, hoping for nothing again.—Luke 6:35.

They shall beat their swords into ploughshares, and their spears into pruning-hooks: nation shall not lift up sword against nation, neither shall they learn war any more.—Isa. 2: 4.

For some time back I have been expecting, and I do not know but *predicting,* here on these pages, that the affairs of this world are approaching a *crisis* of some sort. I felt impressed by this in viewing the improvements and progress that humanity has been making during the last fifty or sixty years. It was my privilege to see steam begin to make its way, not only in plowing the seas, but in traversing the land. With a boyish home-made apparatus I went around to schoolhouses exhibiting a little home-made motor run by an electric battery, and predicting that this new force would outrank steam *itself* in just a few years. I watched and waited, and saw it take *thirty* or *forty* years, instead of three or four. I saw the electric wires for almost the first time, strung on poles throughout Ohio. I was also permitted to experiment with the telephone about as soon as its invention was announced. I have also lived to see messages sent by electricity without *any* wire; and within the last ten days a friend showed me an aerial tower in our neighboring city of Akron that he said had already received wireless messages from Washington. I have also lived to see radium upset scientific theories, and rejoice to have had a tiny spark of the wonderful agent in my possession, where it continues to be *a veritable perpetual motion,* sending out a bombardment of stars or meteors day and night, summer and winter, without any diminution or cessation. I have asked through these columns what is coming next. Perhaps I should mention, also, that it has rejoiced my heart to see the wonderful progress being made in conserving and saving human life. A "sane and safe Fourth of July" has just been inaugurated. I believe it started in Cleveland, a great city close to my Medina home.

Although our great physicians and surgeons have been criticised sometimes rather severely, I believe all reasonable people must admit that there has been a great saving of life in this direction. The ancient practice of blood-letting has been proved to be a foolish fad if not a fraud, and *true science* has, at least as a rule, taken the place of humbug science and teachings of quack doctors. I have lived to see God's precious word spread to the uttermost points of the earth, in nearly all the languages spoken in the world, and sent out by the millions. Cannibalism has almost if not quite disappeared, and I might almost say the same of human slavery. To bring it about cost a *terrible war,* it is true, and a fearful shedding of innocent blood. Some people tell us, and, in fact, *have been telling* us, that the matter could have been settled without bloodshed away back fifty years ago, but we did not *know* any better.

Now, friends, the fearful question now is, do we know any better *now?* We are all hoping that here in the United States we *do know* better; but right *here* in *Ohio* a fierce war is going on just now. There has been a little bloodshed already, and there may be more of it before intoxicants are banished. While schools and churches are taking the place of savagery everywhere, and giving protection to the honest wage-earners, Satan is already at work, and sometimes he startles us with the conviction that *he too* is making *new discoveries* and short cuts. We become careless and indifferent, and lull our consciences to sleep, and try to persuade ourselves *we* are safe here in our quiet and peaceful homes. I have neither time nor space here to mention dynamiting that is continually cropping out.* Now for this terrible European war.

On this 3d day of September the latest news day after day is—*more bloodshed.* I have just caught a glimpse in a daily paper of the news that after one single conflict they buried *6400 bodies*—bodies of *young* men, the flower of the nation; and we have been told at different times that probably many of these poor victims did not know what they were fighting for. In fact, does any one really *know* why almost half the population of the world is engaged in killing each other? Their farms and crops are neglected, and even burned by their own hands if not ruined by the weather, and starvation may kill more than the sword and cannon if these people do not soon come to their senses. By the way, I read somewhere that just *eight men,* possibly *nine,* over in Europe, brought on the war, and that these nine men, if they had a mind to, could stop it in an instant.

I told you a little time back of the text I found in that microscopic photograph. I told my mother at the time I discovered it that it was an "unexplored region"—that if people would stop and listen to these words of the Savior it would not only settle neighborhood troubles but the troubles of State and nation. I do not think I went far enough. If the people in power would consider and listen to the second of my texts, and follow it, it would end the war in a twinkling. Let us look at it again—"Love ye your enemies; do good and lend, hoping for nothing again." Let me digress a little.

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* Little did I think when I was asking what "great event" would stir the world next that it would be some of *Satan's* inventions and planning—a scheme that will not only *not* conserve human life and health, but result in a wholesale murder unprecedented in the history of the world, and a murder, too, of the best youth and manhood (physically) that the whole world can produce.

Right over in the adjoining county of Summit, two farmers quarreled over a line fence, or at least I think that was the trouble between them. They engaged lawyers. Their families and their neighbors sided in, some on one side and some on the other. One day one of the two started to town with his wife and a horse and buggy. The other neighbor met them part way coming home, also with a horse and buggy, with his wife. They stopped their horses and commenced to talk. Then the two men gave the lines to their wives, and got out of their buggies. It seems they both carried concealed weapons—please note this; and Satan put it into their heads that they could fix matters all up nicely by *fighting a duel.* They *listened* to Satan instead of the Lord Jesus Christ, who gave us this wonderful text. Both men were shot dead. Two poor widows sat in their respective buggies, and two families of children were without a father. Now, can anybody *in this whole wide world* tell me what was *accomplished* by fighting that duel? Did they fix the line fence? Did they make pleasant relations in the neighborhood? and were those two widowed women *satisfied* or helped in any way? We read of demoniac possession in olden times; and skeptics have for ages ridiculed the idea of being "possessed by devils." If those two men were not both possessed of a devil, what else *could* have made them so foolish?

Down in Florida recently two other men quarreled about a line fence. They spent years and much money in fighting each other. Finally one of them moved away, leaving the matter still unsettled. A Christian man bought the farm, and the neighbors watched to see him take up the fight. This is the way he fought his enemy: He went to his neighbor and said, "Neighbor, I am a man of peace. I would rather lose a little bit of land than to *quarrel* with a neighbor. Just put that line fence over on my side *ten feet,* and I shall be perfectly satisfied."

What do you think happened? His opponent, who was ready to bristle up and fight to the bitter end, all of a sudden turned "about face," and replied something like this:

"My friend, if that is the sort of man *you* are, I am not going to be outdone in generosity. Put the fence over on my line *ten feet,* and *I* shall be satisfied."

Was not that putting that little text in force with a vengeance—"Do good and lend, hoping for nothing again?"

Now, some folks may think me foolish; but I am just foolish enough to believe this great war could be settled in the same way! and may the Lord be praised there are many other good people of the same opinion. It has rejoiced my heart to see all sorts of periodicals take exactly the ground I do. Let us go back a little.

How did it come about that those two Summit Co. farmers should each be *carrying a revolver?* If it had not been for those revolvers, some good Christian man might have converted them to the gospel of Jesus Christ instead of letting them remain in the dominion of Satan. There is a law now against carrying concealed weapons; and I wonder if it would not be a good thing to stop carrying weapons of *any* kind.

While I have been writing this Home paper I have been thinking of the time when some veteran of the Revolutionary War showed us children a sword and its scabbard. Perhaps they got it down from the garret. Children, of course, would want to know what the sword was for. Could any father, at least nowadays, have the heart to explain that swords are made to use to *kill folks?* They have no other use. My third text, however, speaks of one use. I am afraid, however, they would be too slender and frail for modern agriculture. By the way, friends, have any of you got a sword hanging up in the garret? Break it up and pound it up, or fix it so the children will not know that it was *ever* used for killing folks. I am ashamed to say I once used to sleep with a revolver under my pillow. I think Mrs. Root persuaded me to get rid of it, and I have never touched a revolver since, and that was years ago. Just notice how many children are killed every year by playing with revolvers and guns. Shall we not get rid of them? Is it true that bayonets, daggers, revolvers, stilettos, and all that sort of "truck" open the way for quarrel and murder? They are the implements of the midnight assassin. Do you think I am peculiar or cranky? See what the greatest daily in Cleveland, the *Plain Dealer,* has to say about it:

FALSE INSURANCE.

Arming to keep the peace, a favorite oratorical policy with the jingoes of all nations, never before

> appeared quite so absurd as at the present moment. It ought never to have currency again, even among the thoughtless, after the present troubles in Europe.
>
> Every power in Europe has been arming itself for years—to keep the peace, of course. Great armaments were to prevent war. Billions were spent for this supposed "insurance."
>
> And now Europe is war-mad from end to end. The continent was made a tinder-box by all this "arming against war," and a madman in Bosnia set a match to it. Like a spark dropped into a roomful of explosives, it starts a conflagration which no one can control.
>
> A man armed to the teeth with a chip on his shoulder invites a fight. So does a nation similarly equipped. And a nation is no more justified thus to arm herself and go out seeking trouble than is an individual.
>
> The next time some minister or legislator argues for bigger armaments in order to avert war it will be in order for some one familiar with the events of the summer of 1914 to call him to his senses. One way to prevent a tinder-box fire is not to provide the tinder-box.

While we are about it, here is something else from that same paper:

> The population of the world has been estimated at 1,623,300,000. The population of the countries already at war is considerably more than half of this total.
>
> It is a world war.
>
> And in the area of fighting it is true to its scope. Europe is ablaze, north, south, east, and west. There have been battles in Togoland and on Lake Victoria, in the heart of central Africa. Within a week or two, war will make the Orient lurid.
>
> In the midst of it all, the United States follows its own straight path, but little disturbed by the almost universal conflagration. The republic of the West feels horror and pity, and realizes more than ever before its destiny as the world's foremost exponent of peace, of live and let live; but the vocations and avocations of its people, their daily pursuit of happiness, have known no change.

Now, here is something I clipped from the *Union Signal:*

> It seems incredible that such a conflict can be precipitated in this century, which we have fondly believed heralded the establishment of world-wide peace; and we can only hope and fervently pray that a miracle may still be wrought, and that some of the horrors of the present situation may be averted.

Amen to the above! I am looking, watching, and praying for that "miracle."

Another thing that pleases me is to see that our agricultural periodicals, almost without exception, are deploring war. Here are some clippings from *Successful Farmer,* of Des Moines, Ia.

> ANOTHER LIE NAILED.
>
> The halls of Congress and the platforms of Chautauquas have rung with the bold statement time and again that a big standing army and a powerful navy insures peace.
>
> Was there ever a spot in all the world where nations were so prepared for war as in the war area of Europe? Being *prepared* is the only thing that made possible a war on a week's notice. Had there been no great armies and navies there could have been no war precipitated over such a trivial cause.
>
> It is the "gun-toter" who is a menace to the safety of all good people, be the gun-toter a *villain* or a *nation.* If Europe had had as rulers a few "schoolmasters" gifted in the art of "watchful waiting" there would not now be the terrible story to tell of wars among so-called civilized nations.
>
> It would seem that the human race is in travail, preceding the birth of international peace. Just as the saloon and gambling and white slavery are making one last and desperate fight for existence, so it seems that the war dogs are not putting on the last big show.
>
> Judging the present by the past, we can make a pretty sure bet that the war trust is back of international troubles.
>
> The makers of cannon and armor plate and powder can't sell much of their wares when the war dogs play together in international peace, so it is to their interest somehow to keep nations spitting in each other's faces.
>
> In every nation is the lobbyist of the war trust, inciting legislative bodies to appropriate more of the overburdened tax-payer's money for the building of battle-ships and fortifications.
>
> "War is hell," and we want to burn that fact into every reader's soul. It never becomes any thing else, no matter how our heart throbs with so-called patriotism when the army marches by. War is devastation. War is the life-long suffering for the ones who are spared by war.

In closing this Home paper I wish to make a quotation from Sir Walter Scott's writings of a hundred years ago. In the book entitled "Ivanhoe" a wounded knight lay entombed in his prison. He was not able to get up and look out of his grated window, but asked "Rebecca," a Jewess, to station herself at the window, and witness the conflict going on outside. When she turned away, thinking she could not bear to see what was going on, he implored her to turn back once more and tell him what she saw; and as she looked she gave utterance to the following which seems to be almost a prayer:

"Great God! Hast thou given men thine own image that it should be thus cruelly defaced by the hands of their brethren?"

In *defense* of the expense of our mammoth men-of-war, we clip the following closing paragraph from a very valuable article from *Collier's Weekly* for June 6. It was printed, keep in mind, before the European war started.

> As with individuals, so with nations. As long as certain nations go armed in a wild and savage world, just so long must the enlightened nations go armed. The wild and savage world, with its silly man-killing devices, is doomed to pass. But until it passes, it would be silliness on the part of the enlightened nations to put aside their weapons.
>
> An international police force and an international police court will mark the beginning of the end of war. But as yet these two institutions have not been founded. So the United States will be compelled to go on building $15,000,000 battleships and training its young men to the old red profession.
>
> The point is, when wild and savage conditions make it imperative for a man or nation to go armed, it is equally imperative for the man or nation to go well armed. Ever has the sword, in the hands of the strong breeds, made for wider areas and longer periods of peace. In the end it is the sword that will make lasting and universal peace. When the last savage nation is compelled to lay down its weapons, war will have ceased. War itself, superior war if you please, will destroy itself.

G. C. Brocaw's house as it was first built, and a view of it after he put on a little addition and some porches.

I close with the following closing words from the *Missionary Herald* for September:

> One hope, vague, perhaps, but real and inspiring, cheers the heart at this black hour; namely, that out of the horror of so mad a conflict there may eventuate a disciplined and saner world; that when this house of cards propped by armaments and fleets has fallen in confusion, a more stable and Christian structure shall arise to express the civilization of the twentieth century.

A WINTER HOME IN FLORIDA; THE FLORIDA REAL-ESTATE BUSINESS, ETC.

Shortly after we built our cottage at Bradentown, Fla., a beekeeper and his wife came from Wisconsin or Minnesota to visit us, and they were so much pleased with the idea of passing their winters in Florida that, after looking around quite a little, they bought a piece of land almost in town, but quite close to the salt-water bay. They got the land cheap because it was so low at times that the salt water encroached on a small part of it. Let me explain here that real-estate men in Florida (as a matter of course) are inclined to be jealous of each other; and after one of their number has made a sale the others—at least some of them—who do not make a deal, will cause the purchaser to become dissatisfied. My good friend Brocaw, by coming in contact with some of these meddlesome people, became very sick of his bargain. They told him it was full of alligators, and the salt-water marsh or swamp would not grow any thing. After he had hired some colored men to clear it up partly, somebody said his deed was faulty. I told him not to listen to the gossips, but to go on and improve his place. Under the circumstances he did not feel like investing much, and accordingly he built a little square house. The reason he built it two story was because one roof

E. A. Reddout, with a picture of the cottage he built with his own hands.

A glimpse of the unreclaimed forest in Manatee Co., in the vicinity of the stream at the bottom of my garden

would cover two stories as well as one, and he fixed it up as cheaply as he could so they could live in it a little while. See picture.

One of the first things that he did was to plant a great lot of bananas. I thought he was getting wild on the banana business. He planted out considerable other stuff around the cottage, or around the central part, as seen in the picture, and went off north, and the place was allowed to take care of itself for some little time. Well, just north of his banana-patch a neighbor established a chicken-house and some duck-pens. Whenever one of Florida's big rains came it washed the poultry manure down on to the bananas, and the effect was magical. They grew tremendously, and a neighbor sold enough bananas while he was gone away up north to pay good interest on the money; and the salt-water marsh, after the ditches were dug, not only grew bananas but sweet and Irish potatoes and a lot of other stuff. Later on there was a speculation in selling building-lots and putting up nice residences right close to his " foolish investment " as some people called it when he first made it. When he saw how things were going he took courage and put on the porches and a little back kitchen as you see; and now it is one of the prettiest little cottages for a small investment I have ever come across. You get a glimpse in the picture of himself and his good wife. I think they must be feeling happy because of the beautiful flowers and fruit growing on that investment, and from the fact that he could probably sell it now for five times or more what it cost. Now, you need not think such investments turn out that way every time. Bradentown is growing very rapidly, and it *happened* to "grow" right over where he was located. In fact, while I write a steam-dredge is scooping the sand out of the bay and piling it up on the shore so as to make new dry ground where before it was only a wet marsh or salt water. Residences right on the edge of the bay where you can have a boat-house and launch sell at a high price.

While I am about it I might mention another beekeeper, Mr. Reddout, who comes down every winter from somewhere in York State. On his first trip he put up a tent right back of my garden, and lived there all winter. Last winter, however, he decided to have a house of his own, even if he is not as yet a married man. I have forgotten what it cost; but by doing the work himself I think he was only two or three hundred dollars out in cash. Here is a picture of the little cottage with himself in an easy-chair.

My impression is, that the structure in the background is a tent where somebody is living until he can get a house built. Such things are frequent in and around Bradentown, and I believe they get along very well in a tent except when we have cold storms. But this does not happen very often.

Now, above is another picture giving a glimpse of the wild woods a little up the stream, where my ducks have their playspell every day in the year.

HEALTH NOTES

"LOOK OUT FOR PICKPOCKETS."

I suppose our friends take it for granted that the only danger from pickpockets is getting into a big crowd of people; but the kind of pickpockets I have in mind that I am going to talk about just now are the ones who get your money when you are in your own home by your own fireside, far away from the wicked city or the crowded fairground.

I have been swindled and taken in pretty much all of my life, and I do not know but I shall continue to be swindled. Again and again I think I will learn better; but as fast as I learn better the pickpockets learn to be sharper. Here is a little story I have to tell you now which illustrates very forcibly the ways *some* people work.

I have had a great deal to say about "robbing sick people." Inasmuch as I have mentioned my deafness many times in my writings I presume I am marked by the pickpockets who make their living by bleeding deaf people. In fact, I am led to believe that they hunt up names and pay people for hunting up and giving them the addresses of those who are hard of hearing. A few days ago one of my good friends mailed me a booklet of about 16 pages. I think he said he *found* it somewhere. I am sure he sent it to me with the best intentions. It was written by a woman who had been deaf, but recovered her hearing. I made up my mind before I began reading it that it was an *advertisement* for some new medicine or treatment. I had heard about getting people to go to the drugstore for something that no druggist knows any thing about; therefore I telephoned my druggist to know if he kept such a medicine as "fluid enserol." He replied he had it in stock, and had kept it on sale for some time. Then I ventured to read the booklet all through, and I gave it to Mrs. Root to read. It was almost plaintive in its description of her trouble with her ears; but as her address was not given at the end of the book one was almost forced to believe it was really an honest effort to help people who are troubled with defective hearing. Let me make a few extracts:

A WOMAN'S STORY.

> If it were not for the hope that this little story which I am causing to be published would not benefit the reader, nothing would tempt me to have it printed, but I do hope that every one who reads my story will receive benefit from so doing, and all I ask in return is that they spread the good news which my story contains.
>
> It was something over a year ago that I had reason to visit New York City personally, and while there I thought I would make one last effort to see if something could not be done to relieve me of the head noises.
>
> I went to one of the hospitals and asked to see the most expert physician who could give me his attention. I was directed to one, and after giving me a thorough examination, and after listening to as much of my story as he had time to, he finished by telling me to take the prescription which he had given me, and have it filled at the drug store, and use it according to directions.
>
> I shall never forget the time when I sat in a chair and found that the head noises had almost disappeared. It was such a relief that I broke down and cried.
>
> If I attend the divine services, and sit away forward in church, I can hear nearly every thing that is said. This is so much better than I could a few years ago that I am thankful, oh, so thankful! for this great relief.
>
> This is the copy of the prescription given me:
>
> Pure glycerine, ½ ounce; fluid enserol, 1 ounce; boiled water, 2½ ounces. Mix.
>
> Put one drop in both ears, night and morning.
>
> Wet the forefinger, and rub the solution full strength, behind and below the ears.
>
> Pour ten drops of solution in one-fourth glass of warm water, put some in palm of hand, and snuff up the nostrils, night and morning; also gargle the throat with the same strength solution as used in the nostrils, night and morning.

Please note she mentions attending divine service, indicating that she was a Christian woman. My good old father used to get uncharitable, and I can recall the expression he sometimes used about "using the livery of heaven to serve the Devil in." I went to the drugstore and asked them to put up the prescription as above. As glycerine and "boiled water" are cheap I supposed, of course, that fluid enserol would not cost very much. When he handed me the little bottle I threw down fifty cents; but he replied something as follows:

"Mr. Root, perhaps you do not know that this *enserol* is a very expensive medicine. It costs us over a dollar an ounce."

I think the prescription cost about $1.40. It looked like water and glycerine, and tasted like water and glycerine. But I dropped it into my ears, snuffed it up my nose, etc., according to directions. It did not do my hearing a particle of good. May be it was due to a "lack of faith." But now listen. Our Ohio Agricultural Commission at Columbus sends out an official bulletin quarterly, I think. In their issue for August, page 113, they have taken up the business of exposing fraudulent medicines. I ran over it carefully to see if there was any thing said about fluid enserol. Here is what I found:

> *Fluid En-Ser-Ol.*—Composed of cinnamon water and boric acid.

The above gives us the clue to the whole scheme. The promotors of enserol leave it at the drugstore. I presume if nobody calls for it the druggist is nothing out of pocket. If one *does* call for it, the price is to be what the druggist charged me. I am not reflecting on the druggist, mind you, unless it be that he should refuse to become a "tool" in the hands of such people. You see, after the expensive medicine is deposited at the drugstore these booklets are by some means scattered all over the land; and different people, as a matter of course, get hold of them and pass them out to deaf people. Our druggist informs me that he has quite a number of calls for it. In this official bulletin, about 70 similar remedies are mentioned, and sold, probably, like enserol. Read the following, clipped from the bulletin:

BUREAU OF DRUGS.

W. R. HOWER, Chief Drug Inspector.

WHAT'S IN A NAME?

Many drug preparations which are composed of common low-priced ingredients are sold in Ohio under distinctive names. For the benefit of the drug trade and the general public the Drug Bureau of this Commission has taken up and analyzed the following preparations:

May-a-Tone—Composed of ¼ borax and ¾ epsom salts, perfumed and colored. Selling price 75 cents. Approximate cost 2 cents.

Sartoin.—A pink-colored powder consisting of ⅛ boric acid and ⅞ Epsom salts. Selling price 50 cts. Approximate cost 1 cent.

Citrox.—Composed of granulated sodium hyposulphite. Selling price 75 cts. Approximate cost ½ ct.

Parnotis.—Composed of common baking-soda and dried glaubers salts. Selling price 50 cents. Approximate cost ¼ cent.

Amarol.—Composed of 1-10 borax and 9-10 Epsom salts. Selling price 75 cents. Approximate cost ¼ cent.

Cerol.—Consists of borax and stearic acid, perfumed. Selling price 75 cents. Approximate cost 2 cents.

Sanatogen.—Composed essentially of dried and powdered skim milk, known as casein, 80 per cent, and sodium glycerophosphate, 5 per cent.

The above preparations are fair samples of the class they represent. The manufacturer selects some very common drug or combination of drugs and gives it some fancy coined name. The drug laws of this State prohibit any statement, design, or device on a label that is false or misleading; and a close study of these packages or cartons will show that the manufacturer has in almost all instances successfully avoided any conflict with the law by failing to make any statement beyond the name of the article, the manufacturer's name, and directions for its use.

Gross misrepresentations are made in the newspaper advertising as to the articles' medicinal value, and very few of them have a value of over a few cents.

On the last page of this bulletin I extract once more as follows:

STOP! LOOK! LISTEN!

ADVERTISING FRAUDS TO BE EXPOSED.

Director Thorne, of the State Experiment Station, recently received a letter from a citizen of Ohio, asking that something be done to expose fraudulent advertising in some of the farm papers.

If any farm paper is advertising fraudulent wares or products, it is undoubtedly unaware of the fraud. If any frauds are being advertised, both the public and the editors of the papers ought to know it.

The *Official Bulletin* will publish any reliable evidence of fraud that may be furnished to the Agricultural Commission, Division of Agriculture, Columbus, Ohio.

Now will our people of Ohio "get busy" and report promptly any fraud they see advertised in our farm papers? I have had quite a little to say about the new remedy called sanatogen. Please note that this is included in the above bulletin.* I do not particularly mind, friends, the money I invested; but think of the pains I have taken, night and morning, for two weeks past, to go through with that *make-believe* woman's(?) instructions.

I have interviewed our druggist, who says boric acid is 5 cents an ounce, while fluid enserol is $1.25 an ounce. Furthermore, he says there are doctors, quite a lot of them, who do most of their doctoring by giving their patients some of the 70 new-fangled remedies I have mentioned above. He has the same quarterly from which I have made some extracts. In fact, the State of Ohio has taken pains to put it in the hands of all druggists, so they may not be innocent in regard to what they are giving sick people. My good friends, there has been a lot said about the high cost of living; and a good brother has called our attention to "the high cost of dying." Shall we not also consider the high cost of getting sick? I might add that I am told that boric acid is a very good remedy for the eyes and ears; and so my treatment that cost ten times what it was worth will probably do no harm, even if it does no good.

REPELLENTS FOR PROTECTING ANIMALS FROM THE ATTACKS OF FLIES.

The above is the heading of a leaflet just received from the Department of Agriculture. With the crusade against the common house-fly, I think we have succeeded in establishing quite a victory over them already. In fact, we have had fewer flies this summer in our home, and even in the office, than I have ever known before. With this in view it seems quite proper that we should try to relieve the poor suffering horses and cattle, not only for humane reasons, but because it will pay in dollars and cents. We have used spraying solutions on our own horses and cattle quite a little already. There are two objections. The first is, that the virtues of the spray are soon gone. The second reason is, that the liquids on the market are rather expensive, especially if one has to pay the express charges on a package.

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* While we are about it I want to say that the poultry remedies, at least the greater part of them, that are advertised and sold in immense quantities, are about on a par with the above report. You pay 25 or 50 cents for two or three cents' worth of medicine, and many times you do not get the medicine even then—that is, what is advertised as a remedy is little or no remedy at all. It is just "electropoise" and "oxydonor" over again.

This government leaflet speaks of these troubles, gives us something that costs but a trifle, and lasts something like a week. I am glad to see they recommend naphthalin flakes, which we have mentioned before on these pages. I feel quite sure the mixture will do the business.

This preparation is recommended after many exhaustive experiments with almost every thing else. Here it is:

Many of the substances such as pyrethrum powder, camphor, citronella, and sassafras, while temporary repellents, lose their effectiveness very shortly. Ten-per-cent solutions of the liquids in cottonseed oil, therefore, commonly have to be applied daily.

Various oils, emulsions of oils, and mixtures of oils are used in repelling flies. Crude petroleum, cotton-seed oil, fish or train oil, and light coal-tar oil, may be used pure.

Jensen (1909) recommends the following formula which is said to protect cows for a week:

Common laundry soap, 1 lb.; water, 4 gal.; crude petroleum, 1 gal.; powdered naphthalin, 4 oz.

Cut the soap into thin shavings and dissolve in water by the aid of heat. Dissolve the naphthalin in the crude oil; mix the two solutions; put them into an old dasher churn, and mix thoroughly for 15 minutes. The mixture should be applied once or twice a week with a brush. It must be stirred well before being used.

POULTRY DEPARTMENT

THE BUSY HEN.

A hen stood on the garden lot,
Whence all but her had fled,
And didn't leave a planted spot
In the early onion-bed.
With vim she worked, both feet and legs,
And the gardener says he bets
She was trying to find the kind of eggs
On which the onion sets.

When I found the above in the *Rural New-Yorker,* and concluded to give it to the readers of GLEANINGS, I could not quite decide whether it belonged in the Poultry Department or High-pressure Gardening; but I finally decided that it was rather more chickens than garden.

CHICKEN-MITES AND OTHER "VARMINTS."

Dear Mr. Root:—Don't feel too bad about those poor mites that were obliged to live on wood between chicken seasons. Wood is his native habitat, and chicken only an acquired taste. If you have never tried carbolinum for mites you have not found the easy way of abolishing them. One application a year to the perches and nests will keep them away, as they hate it as bad as or worse than you do rum. For body lice a little "blue ointment" or mercurial ointment (same stuff) about the size of a pea well rubbed against the flesh under the vent will keep Mrs. Hen free for six months to a year if no rooster is on the job to supply more. These two things make the vermin problem easy.

Cheshire, Ct., July 6. F. M. PEASLEY.

CUTTING OFF THE SPURS.

In your June 1st issue, about cutting off spurs from fowls, we always trim them off. Sometimes they bleed freely. If they do, sear with hot iron the same as a cow's horn.

Bernalilla, N. M., June 14. F. E. FAIRCHILD.

ONE HUNDRED MILLION DOLLARS A YEAR LOST TO THE UNITED STATES BY BUGS.

When we spent our summers at the cabin in the woods I told you how I fell in love with the wild partridges. The partridges are near relatives of the quails, and I should have had some tame partridges long ago were it not that I spend my summers in Ohio and winters in Florida; and when I move away who would take care of my quails or partridges? The following, which I just clipped from the *Chicago Advance,* has revived my craze for quail or partridges—both or either.

SAVE THE QUAIL.

Very seldom have we eaten quail on toast. In the first place, we have never felt sure that we knew how; in the second place, it seemed to us to cost the quail so much in proportion to the little good it did us, that we had some conscience about it. We shall now have other reasons. In the current issue of *Farm and Fireside* a contributor says that the chinch bug costs the farmers of the United States at least $100,000,000 a year. Various means for fighting these bugs have been devised, but their most successful enemies are the birds of the air. In regard to the natural destroyers of this insect pest the author of the article writes as follows:

"If the law of the survival of the fittest applies in all cases, it is reasonable to believe that the ultimate check to the propagation of the chinch bug will come about by the birds that eat them at all stages of their life history. Among the birds that eat millions of these pests may be mentioned the quail, the meadow lark, and the sparrow.

"If the chinch bug is to be practically eradicated we must depend upon the efforts of the quail, as his home is in the brooding-grounds of the chinch bug. Nowadays things that are done have a certain degree of the idea of permanency about them, hence the first step in the permanent destruction of the chinch bug is a more complete protection of the quail that assists also in lowering the losses caused by the cotton weevil, the grasshopper, and the potato bug."

We much prefer quails to chinch bugs. The children of Israel ate quail. John the Baptist ate baked grasshoppers. The latter were quite as nutritious, and the farmers could spare them better than the quail. Besides, no one wants honey with quail.

I must confess I do not quite see where the *honey* comes in in the above pleasantry; but I presume it is because John the Baptist, during his ministry, ate locusts and wild honey.

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College

Gleanings in Bee Culture

VOL. XLII. OCT. 1. 1914, NO. 19.

The Old Original 1853 Edition of Langstroth Reprinted Now Ready for Distribution

One of the Most Charmingly Written and Entertaining Books that was Ever Published

It so stirred A. I. Root in the early days that he wrote: "What a gold mine that book seemed to me! . . . . . . Never was romance so enticing—not even Robinson Crusoe; and, best of all, right at my own home I could live out and verify all the wonderful things told therein."

Here is what Others say:

This will preserve the original for future generations. G. M. Doolittle.
Marietta, N. Y., April 16.

I am much pleased with the reprint which has come to hand.
Amherst, Mass., April 15. B. N. Gates.

It is very interesting—not only from a sentimental but from a practical standpoint.
Guelph, Can., April 21. Morley Pettit.

The dear old man was one of God's very own; and to have this reminder of him on my bookshelf will give me much pleasure. A. J. Cook,
State Commissioner of Horticulture.
Sacramento, Cal., April 18.

It seems good to read again this charming work. It must ever remain to the American beekeeper a classic, both instructive and fascinating.
Middlebury, Vt., April 15. J. E. Crane.

It is well to have Langstroth reprinted; and if all would read it, many would be saved from going over well-thrashed straw. I have several of the early editions, and am glad to add this to them.
Arthur C. Miller.
Providence, R. I., April 20.

I have a copy of the reprint of the 1853 Langstroth. I have long admired the writings of Langstroth, and had read his original edition with great interest. It is especially interesting in that he discusses some of the points that are annually "discovered" by others who are unfamiliar with the literature on bees. I feel that it might benefit American beekeepers to become familiar with this book, and trust that it will have a wide distribution. The book is a classic, and should be known to all good beekeepers. E. F. Phillips.
Washington, D .C., April 16.

I am much pleased to get the reprint of Langstroth, and I thank you heartily for the same. I have not yet had a chance to look it through, but did look into it enough to recognize the dear old book. It was the very first thing I ever read on bees, and I read it through the first night—the night of the day I captured my first swarm. At least I read it till I dared not sit up any longer, lest my father arrive on the scene with a slipper. I did not dare look at the clock when I finally did go to bed. Yes, I got the fever bad. Allen Latham.
Norwichtown, Ct., April 30.

"Entered according to Act of Congress in the year 1853, by L. L. Langstroth." Entered at the same time, without any act of Congress, by means of the book containing the aforesaid legend and the hive which accompanied it, a flood of light upon the dense darkness that had from the foundation of the world enshrouded the secret and mysterious doings of the little busy bee within its enclosed domicil.

That divides the history of beekeeping into two distinct periods—the long ages before 1853, and the little span of threescore years since then. The rapidly diminishing few who have lived in both periods are in best position to appreciate the immense difference in the two. As we scan again the pages of the old—and ever new—book, "Langstroth on the Hive and the Honeybee," how memories arise of "the grand old man" with the inventive brain and loving heart, and with the gentle voice we loved so well to hear! What a blessing that the same man who could make such a revolutionary invention could also write so beautifully! Whatever other books the beekeeper may or may not have, he is likely always to cherish the one classic from the graceful pen of the beloved Langstroth.
Marengo, Ill. C. C. Miller.

While some of our readers may, perhaps, feel that this work would be out of date, the fact is,

FATHER LANGSTROTH WAS 60 YEARS AHEAD OF HIS TIME.

So much so that he revolutionized beekeeping throughout the world.

The book that helped to bring about this remarkable revolution is well worth reading to-day. It is full of valuable tricks of the trade.

PRICE: 400 pages, bound in cloth, $1.00 postpaid; clubbed with GLEANINGS, $1.50; with A B C and X Y Z of Bee Culture, $2.50; with Dadant's Revised Langstroth, $1.85.

The A. I. Root Company, Medina, Ohio

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio
H. H. ROOT, Managing Editor E. R. ROOT, Editor A. L. Boyden, Advertising Manager
A. I. ROOT, Editor Home Department J. T. CALVERT, Business Manager
Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLII. OCTOBER 1, 1914 NO. 19

EDITORIALS

The Army Worm Not Destructive to Clovers

THE awful army worm, which we have been reading so much about in the papers, that destroys our grain, our grass, and our lawns, it is said will not attack the clovers. Why this is so we do not know. As clover is one of our main sources of honey, we shall rejoice that this menace to other crops is not destructive to our important sources of honey.

The Price of Sugar—Will it Rise or Fall?

AT this writing, Sept. 25, sugar has declined a little; but all experts who are at all familiar with the subject seem to unite in the opinion that sugar is bound to advance on the simple rule of supply and demand. The fact that nearly half of all the sugar produced in the world comes from countries now at war, and that this supply is not now available, will inevitably have an influence on the price of sugar. The price will have to advance; and if it does go up at the present time, honey will likewise take an upward trend.

Feeding when Robbing is Bad

A BEEKEEPER in Northern Michigan desires to feed candy, for he says it is impossible to feed syrup because robbing is so bad. He says, " Throw a section of honey 20 feet high, and the robbers will have it all carried away before it hits the ground." Some robbing! A little later on in the letter he admits that he made the statement a little too emphatic.

Joking aside, there are, of course, a good many times when feeding is hazardous. We have usually prevented any great uproar by using division-board feeders, and we have even used the Boardman entrance feeders considerably. However, we feed late in the afternoon, and work very rapidly; and under conditions when robbing is bad we avoid feeding a part of the colonies in a yard and not the rest. Of course the entrances must not be any larger than necessary. Weak colonies having considerable honey must be carefully looked after.

Our Cover Picture

IN this issue, which, so far as the illustrations are concerned, is almost a special number on the subject of field meetings among beekeepers, it is opportune that our cover picture show a field meeting, not exactly of beekeepers, but of " rural camp boys," from the School of Sydney, Aus., visiting the apiary of Messrs. T. G. Adamson and G. G. Phillips, 282 miles away at Nemingha, N. S. W. The boys with their teachers and friends made up a crowd of 200 in all. The engraving on page 762 shows a few of the boys doing some close inspection work. Although there were so many of them, not one was stung.

This apiary, which Messrs. Adamson & Phillips call their Ngoora apiary, was built up from a start of 30 colonies brought 330 miles six years ago. The total investment has been about $2500, and nearly $8500 worth of honey has been produced during the six seasons, which honey has found its way to the London market where it commanded good prices. Mr. G. G. Phillips, who is the apiarist, writes that alfalfa is grown very largely in the locality.

The General Honey Crop this Season with the Exception of that from Clover about the same as Last Year

ATTENTION is called to the Government statistics relating to the yield of honey this season as compared with last year. The fact that the Government figures so nearly agree with the general reports we gave out last year, and this based on independent sources of information, gives us confidence in their general accuracy. There is one thing that shows out; and that is, with the exception of the production of clover honey, this year will compare favorably with last. The general impression has been that the whole season throughout the country was poorer than last; but this is not correct.

It is no little gratification to know that the Government has taken hold of this work as thoroughly as it has; and we hope that the beekeepers in the future will co-operate more than they have in the past in helping the Government, and that means filling out the Government reports.

Bee Botany at Medina

DURING our spare moments we have been deriving a great deal of pleasure in brushing up on the botany of our old school days. We have been out in the fields not a little with Gray's large work on botany, studying the great varieties of goldenrod, helianti, and the asters. Asters! my, oh my! If they drove Professor Asa Gray nearly distracted in trying to differentiate the different species, what can you think of the predicament of a poor bee editor who has forgotten almost all he ever knew, and who, after he had "studied up" some of his old books over and over again, found he was in almost as big a maze of confusion as before? Said our local botanist, Dr. C. D. Freeman, one species of aster will seem to merge into another; and it is very difficult, inasmuch as they hybridize, to draw the line, and that is true.

However, the study of this fall bee flora is exceedingly interesting, even if we can't call them all by name, and there is a practical bearing to it, because it means dollars as well as an insight into the wonders of nature.

Most people, when they go into the fields, forests, and swamp lands, see nothing but a mass of weeds and tangled brush. But there is something else there. There are the wonders of creation if one will only keep his eyes open. Ye editor in his "brushing up" on botany is beginning to see some things that he had either forgotten or else had never seen before.

We are reminded of the old days when A. I. Root, in his eager desire to find what the bees were working on, began to get the botany fever. Our older readers will remember that he once had, in those early days, a department called "Bee Botany;" of how eagerly he had sought out and had named every plant that the bees visited. Perhaps it would be worth while to revive the department; for possibly by so doing our subscribers would be enabled to recognize some old friends which have given them dollars, and some new friends which, if their acquaintance were cultivated by putting the bees near them, would do likewise.

Die Biene und der Breitwabenstock; By Frank Richter, Pottenstein, Vienna, Austria

A FEW months ago GLEANINGS received an autograph copy of the above-mentioned book (The Bees and the Deep-comb Hive). The author of the book, Franz Richter, Pottenstein, Vienna, Austria, is a beekeeper who used progressive methods with a most decided leaning toward modern ways of beekeeping as practiced in America at the present time. His book is up to date, and full of interest for any beekeeper. There are over a hundred illustrations, so that even one who does not read German may glean much information from the universal language of the pictures.

Mr. Richter feels that the hive of Langstroth dimensions as commonly used in this country is a trifle too long and also too shallow. His hive, the *breitwabenstock*, therefore, has ten combs that are shorter and also deeper than the ordinary combs as used so extensively in this country. The book, however, is not intended merely for the user of the deep-comb hive, for it is full of valuable information for all who handle bees. It starts with a chapter on the natural history of the bee, with diagrams, etc., then follows a description of the deep-comb hive, various parts illustrated, etc. The rest of the work is taken up with descriptions of various devices, tools, methods of procedure, a discussion of robbing, swarming, increase, disease, etc.

We understand that the book is sold at the low price of 45 cts. Whether it could be secured at this time, on account of the war, is doubtful.

Beekeeping Around the Swamps

BEES are still doing nicely around the swamps. The swamp-milkweed, boneset, blue verbena, and other plants that have been furnishing us honey have now given place to the asters, goldenrods, helianthi, and what appears to be swamp-sunflower. The particular aster, that furnishes the most honey, has a small white flower. We have not positively identified the species, but think it is either *A. vimineus* or *A. tradescanti*, more probably the latter species. It seems to grow everywhere, not on low wet land, but on side hills and waste lands. The bees are hovering over it in great numbers. The blossom is so small and insignificant, and so destitute of odor, that one can scarcely imagine why it should be so attractive to them; but on leaving a field of these asters, and going up on high ground in the direction of the nearest beeyards, we find that the bees are flying back and forth by the thousands. Examination of the hives shows a light-colored honey; and while, of course, it does not compare with white honey, or that from basswood or other honeys, the flavor is fair; but Mr. Halter says that, unfortunately, the bees will get too much of it sometimes, so that cool weather will come on before the honey is capped over. Then it causes trouble in the form of dysentery. But it makes a very good winter food, he says, when ripened and capped over; and for that reason we shall watch the bees narrowly. If they have any of this uncapped honey, we will take it away, of course.

There is another aster in our locality that somewhat resembles the *A. tradescanti*, except that it is of a blue or purplish blue, with a little larger flower, but a shorter plant. The bees work on it almost as freely as on the other. As nearly as we can identify it, it is *A. laevis*.

Another plant that the bees are working on may be one of the helianthi. It may be swamp sunflower (sneezeweed), *Helenium autumnale*. In our last issue we reported that it was the Jerusalem artichoke; but further examination shows that it cannot be that, as it has no tubers in the root, and, moreover, the heads are different. We have not positively identified the species as yet. The bees are working on it very profusely, and it appears to be one of the important sources of nectar.

There is a great variety of other flowers still to come on that our bees at the swamp will be getting honey from until the next hard frost. It should be noted in this connection that light frosts do not do any harm to the asters and helianthi. They seem to be proof against ordinary cold. It is also somewhat remarkable that these plants will secrete nectar when the mercury is as low down as 50 Fahrenheit—so cold, indeed, that the bees toward night are often left in the field to return next morning if it warms up enough. These fall blossoms seem to depart from the rule of summer flora that require a warm and muggy atmosphere before they yield nectar. While the bees do not work on them so heavily when the weather is so cool or cold, they nevertheless gather nectar. “ Some of the bees were so cold during that last cold spell,” said Mr. Halter, “ that they would be too chilled to get into their hives. Hundreds and almost thousands would be lying all over the ground.” He was inclined to think they would be lost; but we assured him that, as soon as the first warm sunshine came out, they would go back to their hives. But, nevertheless, such cold weather must be a strain on the bees, and we therefore assume that a large amount of nectar must be yielded or the bees would not brave such cold. Examination of some of the hives showed that a few had brood on the outer edges chilled.

As we went over the waste land in the vicinity of Hudson we found that recent frosts had killed down all the heartsease; but the asters and helianthi were as bright and smiling as ever, welcoming the kisses of the bees that were everywhere present.

BEES FLY FURTHER FOR SWAMP PASTURAGE THAN FOR ORDINARY CLOVER PASTURAGE.

The reason of this is obvious. When clover is in bloom it is so abundant that the bees can usually get all they can take care of, within a range of a mile or even half a mile. In our locality bees seldom fly further than one and a half miles at most in clover times; but at the Hudson swamp we found our bees on some of these little asters that had evidently come 3½ miles, because we readily recognized our own leather-colored Italians, the nearest yard of which was that far away. It is evident that bees in the fall, when short of pasturage, make long excursions. These excursions become more and more extended until pasturage is found. When the first bees find it, they are not slow in communicating the good news to the rest.

These swamps about Hudson look so good to us that we are securing locations at several points. The papers at Akron had it that we were going to “ buy up the whole thousand acres” of swamp land; but we would hardly do this even if we could. If it could ever be drained it doubtless would be converted into one vast truck garden; but we understand that this is not practicable and probably will never be done.

Honey-crop Report from the United States Department of Agriculture

On pages 6 and 7 of the General Review of Crop Conditions for September 1, 1914, in Farmers' Bulletin No. 620, a general report is given of the honey crop for 1914. Preceding the table of results is a summary, agreeing closely with the reports that have appeared in Gleanings.

In the first place it will be noted that, according to this table, there is a marked decrease in this year's crop of clover honey in the North Central States, where clover is mainly produced, compared with that of last year. With some slight variations the alfalfa crop in the West is about the same as in 1913. With the exception of the shortage in clover, the yield of alfalfa and other honeys is about the same as a year ago.

The data in our own office support the Government's figures, and we therefore assume that they are correct.

The decreasing percentage of comb or bulk comb honey, in comparison with extracted honey, is commented upon. There are probably two reasons for this: First, in many markets not enough more can be secured for comb honey than for extracted to pay for the difference in the total amounts of each that can be produced from a given number of colonies; second, the greater difficulty presented in shipping comb honey as compared with shipping extracted honey. This latter does not have reference to bulk comb honey, but to comb honey in sections. Much of the difficulty here is due to carelessness in grading and packing on the part of the producers themselves. Breakages in shipments of comb honey from small producers are so frequent that honey-dealers and commission merchants often refuse to continue to handle comb honey.

There is, perhaps, a third reason which ought to be mentioned, and which includes bulk comb honey, and that is, that comb honey, when it granulates, as it often will if not sold within six months, commands a much smaller price. So far there is no practicable way of liquefying comb honey without reducing it to a liquid honey and wax.

Taking it all in all, the report is exceedingly valuable, and we note with pleasure that our general Government is taking hold of this work and doing it so well.

TABLE 8.—HONEY—YIELD PER COLONY AND PROPORTION OF CROP IN COMB, EXTRACT, AND CHUNK, 1914, WITH COMPARISONS.

State.	Yield per colony.		Form of honey produced. Proportions in 1914.			Proportions in 1909.		
	1914	1913	Comb.	Extract.	Chunk.	Comb.	Extract.	Chunk.
	Lbs.	Lbs.						
Maine	45	38	80	15	5	80	20	0
New Hampshire	27	27	..	..	..	..	..	..
Vermont	39	33	65.9	28.1	6	70	28.8	1.2
Massachusetts	25	31	66.9	32.4	0.7	86	12	2
Rhode Island	40	45	5	95	0	10	90	0
Connecticut	28	35	48	47	5	58	33	9
New York	20	37	47	50	3	60	38	2
New Jersey	10	40	25	75	0	65	35	0
Pennsylvania	35	45	65	29	6	74	21	5
Delaware	15	21	..	..	..	..	..	.
Maryland	30	40	69	22	9	90	10	0
Virginia	30	38	87	12	1	93	7	0
West Virginia	25	20	57	38	5	..	..	..
North Carolina	35	25	45	30	25	43	21	36
South Carolina	25	25	..	..	..	..	..	..
Georgia	30	30	28	33	39	54	15	31
Florida	42	50	11	88	1	15	84	1
Ohio	17	50	66	32	2	68	29	3
Indiana	14	60	52	36	12	62	25	13
Illinois	12	60	42	56	2	53	46	1
Michigan	37	50	56	43	1	69	30	1
Wisconsin	45	60	41	58	1	28	71	1
Minnesota	35	60	36	63	1	52	48	0
Iowa	20	65	56	42	2	65	34	1
Missouri	5	30	32	38	30	41	35	24
North Dakota	..	..	..	..	..	..	..	..
South Dakota	20	50	77	22	1	65	30	5
Nebraska	30	50	43	42	15	61	38	1
Kansas	25	25	67	28	5	78	19	3
Kentucky	8	40	49	33	18	50	27	23
Tennessee	30	30	31	23	16	26	19	55
Alabama	32	35	34	41	25	39	32	29
Mississippi	31	35	49	26	25	43	27	30
Louisiana	40	35	0	100	0	..	..	..
Texas	55	35	4	51	45	1	40	59
Oklahoma	25	35	36	17	47	40	15	45
Arkansas	15	30	25	15	60	15	5	80
Montana	30	35	..	..	..	.	..	..
Wyoming	75	75	92	8	0	5	95	0
Colorado	40	60	67	30	3	70	28	2
New Mexico	85	50	31	61	8	37	61	2
Arizona	63	70	6	94	0	10	90	0
Utah	65	70	17	83	0	0	100	0
Nevada	50	75	.	..	.	..	..	..
Idaho	50	55	47	51	2	67	30	3
Washington	55	45	46	54	0	59	41	0
Oregon	45	40	64	34	2	53	38	4
California	75	36	18	79	3	20	79	1
United States	31.6	40.6	41.7	42.1	16.2	46.5	34.9	18.6

Dr. C. C. Miller STRAY STRAWS Marengo, Ill.

THE season was remarkably wet, and then it turned around and burned the pastures brown till a good rain came Aug. 16. [That has been the trouble in most localities; and the parching hot weather has been the main reason why the crop of clover honey in the country was cut short. In the whole northern portions of the country, where the season was two or three weeks later, the rains came soon enough to save the crop.—ED.]

SPEAKING of European foul brood, Mr. Editor, you ask, p. 619, "If you had used only vigorous Italian blood instead of part hybrid, would you not have been entirely free from the disease by this time?" Hardly. I have had just five cases this year (mild). Two were three-banders and three hybrids. Previous years Italians were also affected. Yet I wish I had only Italians, and advise them for those fearing European foul brood. Please remember, too, that the disease surrounds me.

I'M SORRY I couldn't report my 1913 crop in pounds. Not knowing the weight, I gave the number of sections per colony. The result has been that in a number of cases (as in last GLEANINGS, p. 661), it has been stated that I got 266 *pounds* per colony—a regrettable exaggeration. I don't believe it was more than 245 pounds, and possibly not more than 235. [We should put even the figures, of 235 pounds, as a record-breaking job—pretty good for a young old man 83 years old like you.—ED.]

REFERRING to that matter of foul-brood colonies absconding during treatment, I may say that I didn't have absconding after I began giving a section of honey to the colony left in the empty hive. [The one serious difficulty with the standard orthodox treatment of foul brood, either European or American, is the tendency of bees to swarm out after being hived on frames of foundation. If a section of honey will overcome the trouble it will mean much. But we should suppose that such section, after the bees get started on foundation, should be burned or melted up, and the honey brought to a temperature of boiling for twenty minutes, as recommended by Dr. Phillips.—ED.]

J. E. HAND, glad of your company on that sugar-feeding business, p. 671. It is possible that Editor Root may be correct that evaporation and inversion of sugar syrup may be no harder on bees than in the case of nectar, and he is correct in saying that thousands of colonies are successfully wintered on sugar syrup. But that doesn't end the matter. Two colonies, side by side, may to all appearances winter equally well, one on honey the other on syrup, but there may be a notable difference in the vitality of the bees. Those fed on honey have *all* the elements needed for full vitality, some of which are entirely lacking in sugar; and, although these latter are minute in quantity, they are so important that, without them, there will be a lack of vigor. I don't think it would take many kegs of nails to supply all the iron I need; but I believe I should suffer in health seriously if all iron were denied me—same with bees. I have a suspicion that the honey-fed bees may be of such greater vigor that their successors shall do enough more on the harvest to pay for a difference of 5 cents a pound—possibly 10 cents—between honey and sugar. Moreover, I believe, on the same ground, that if three-fourths or more of the sugar used by this nation were replaced by honey we should be a more vigorous people. [You may be right; but we feel quite sure you have overestimated the relative difference in values. Even 5 cts. per lb. is a big difference. Is it not a fact that sugar-fed colonies produce big crops the following season? Chemically speaking, sugar syrup, if properly inverted, is very nearly the same as honey. Sugar syrup and nectar in the first place are both cane sugars or sucrose. At the same density the bees will invert either; that is to say they will make a sort of honey of both. But a great deal of sugar syrup fed in the hives is only partially inverted, because it is fed too late or too thick. But we have noticed time and time again that the late feeding of thick sugar syrup has brought out colonies in the spring that were the best we had in the apiary. A strong, vigorous colony in the spring, no matter how it was fed, ought to get more honey when the harvest comes on than a weak colony fed on honey during the winter. No, sir, doctor, we feel sure that you are greatly overestimating the difference, if difference there is. Then, what element is there in honey that the bees need that is not found in good pollen and sugar syrup? When natural pollen comes on in the spring the bees will probably get all the elements they need.

This is a profitable subject for discussion, and it is an important one. If Dr. Miller is right in his belief that honey is 5 cts. per lb. better as a winter food, then we ought to know it.—ED.]

NOTES FROM CANADA

J. L. Byer, Mt. Joy, Ont.

Page 571, Aug. 1, the claim is made that boneset honey is bitter and will spoil buckwheat honey for table use. Is this an established fact? If so, it surely must be a matter of "locality." I know of a few sections in Ontario where this plant grows in abundance around marshy places; and while these same localities produce lots of buckwheat honey I have never yet noticed this bitter taste, even if the bees worked freely on the boneset at the time buckwheat was yielding.

* * *

I am surprised that Mr. Chadwick made that comparison on page 328, May 1, as to the feeding of hogs and bees. Please remember, friend C., that, if you gave a pen of hogs all the feed they would need for more than one meal, they would waste or foul all they did not use at once. No matter how much you feed the bees in the fall at once, you can give no evidence to prove that any of them ever make "hogs" of themselves. I often like to differ with A. C. Miller; but on this question of feeding he is "sound as a dollar" on general principles, even if he did advise a bit of *overdose,* perhaps, in a late issue of GLEANINGS.

* * *

Just a word of explanation regarding Mr. Holtermann's suggestion, p. 688, Sept. 1, that I am not doing my son justice when I claim to "rough it alone mostly" in so far as the summer work in the apiaries is concerned. My son is a faithful lad, and deserves all credit for the work he does; but he has never spent a season in the yard with me yet. When 16 he left school, and in the summer looked after the yard I bought 200 miles from home. The next year he was there also, and during the busy time of the last two seasons he has been at the Lovering yard, 100 miles north. My wife helps only with the extracting, sometimes giving me a lift for a day or two during queen-clipping in fruit-bloom. So, after all, my statement as to "roughing it alone" is correct in so far as the swarming is concerned; but there is no boast implied in the statement, for many might think the "roughing" was overdone. I am quite willing to let my friend lift off supers of every colony every week or oftener if he wishes; but I frankly confess that, if I had to do that work alone, I would go out of the business, for it simply would be a physical impossibility. My losses from swarms are extremely light—many seasons practically nothing, so I see no reason for trying to kill myself with work when there is no profit in it after all.

* * *

On page 657, Sept. 1, the editor states that the smoke method of introduction is proving uncertain in many cases. Personally I have lost two queens when using this method; and, judging by the editor's remarks, I guess I oversmoked the colony, as it was a very vicious one. After killing two queens, one was given in a cage with candy for the bees to eat out, and in this case they accepted her. Generally speaking, there is no plan but will fail once in a while under certain conditions, and it is a question of choosing the simplest plan that will give best uniform results. Said plan may prove all right for me, but not for the other fellow. The moral is that, when you strike a pla nthat gives you splendid success, stick to it, or at least go slow in adopting another plan that gives you splendid success, stick but which may prove to be a poor substitute in your own case.

Another matter that is mighty uncertain with many is the making of candy for bee-feed. F. J. Lee, page 657, Sept. 1, tells of his troubles in that line, and I happen to know that many others have been just as unfortunate. In fact, one lot I made myself acted just as his did—ran all down among the frames, and did more harm than good to the bees. Some candy I made was inclined to be granular when finished; and, although the bees worked it all right, yet there was considerable waste. To the other lot I added more honey, and the finished product was hard and glossy; but, as already stated, when placed over frames it melted enough to run down among the frames. I am inclined to think with some other correspondents that a course in candy-making is essential before one can be really sure of getting a right article for the bees.

* * *

Heat and moisture—surely a wonderful combination to change the looks of the country after a prolonged drouth lasting the greater part of the summer. About August 10 bountiful rains fell, accompanied with warm weather, lasting for two weeks. As a result, prospects for next year are greatly improved, as wherever there was a bit of clover that has survived the drouth, a splendid growth came on at once. While there will not be very much alsike for next season in our locality, owing to so many fields being killed outright, yet we have a

Continued on next page.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.

THE HONEY CROP

The honey crop in Colorado this year came in spots, some localities having a full crop and others a total failure so far as surplus is concerned. I have not heard of any very extended district where feeding will be necessary. The crop in the Grand Valley from Glenwood Springs to Fruita is reported very poor. In Mesa County the crop will probably not average ten pounds to the hive. Parts of northern Colorado, the Arkansas Valley, and the southwestern part of Colorado had fair crops, while the western-slope counties of Montrose, Delta, Mesa, and Garfield had very light yields. Prices on comb honey tend to rise, and all the comb honey for shipment will have been moved earlier than last year, and for at least ten per cent more than was realized a year ago. The extracted-honey market is very quiet as yet; but if sugar stays around $10 a sack it will not be hard to dispose of our extracted honey right at home.

* * *

MORE INFORMATION ON SWEET CLOVER NEEDED.

Quite a lot of sweet-clover seed put on the market is thrashed out in the wheat and oats, and is gathered up along with other trash, weed seeds, etc., after the thrashing is done. So much of this seed is unripe or blasted, and so mixed with weed seed, that it should hardly be put on the market. But with the demand there is for sweet-clover seed, it will get on the market. Every farmer who contemplates sowing sweet clover should find out how to test seed or examine it with a microscope before purchase. The United States Department of Agriculture had some enlarged photographs of alfalfa, sweet clover, and weed seeds on exhibition at the land show in Chicago last year, which were very fine. One could soon learn to distinguish the different seeds. If these illustrations could be placed before all prospective purchasers of sweet-clover seed it would aid them a great deal.

The Government bulletin on sweet clover should be in the hands of every person who wants to sow the seed.

Some seedsmen have said that sweet-clover seed should always be sold in the hull in order that there need be no danger of getting alfalfa and sweet-clover seed mixed. To the casual observer the seed does look similar when hulled. However, the odor of hulled sweet-clover seed is unmistakable, and there need be no selling of alfalfa seed for sweet clover or *vice versa,* if the odor is known.

One other point should be emphasized, and that is, the slow germination of the seed. A thirty-day test of seed may bring out but a very small per cent of germination. If all the seed that is good would germinate promptly, but three to five pounds of hulled seed would be sufficient for an acre.

Doubtless many will be carried away with the sweet-clover-seed agitation, and will sow the seed when they have no very great need of it; others will have indifferent results; but in the long run we may expect sweet clover to be with us as red clover and alfalfa now are.

Notes from Canada. Continued from page 750

few fine fields since the rain, and quite a lot of white clover has shown up also since the change in weather conditions.

Buckwheat fields were plentiful with us; but the yield of honey is very light. The first two weeks of August, which is always the best time for buckwheat honey with us, were very cool and dry, and then the next two weeks were very wet—that explains matters. We shall do well if we have enough buckwheat honey to pay for feeding the colonies that are light in the brood-nests; and many localities that I know of have not even that much. Thanks to a late flow from willowherb, etc., bees are in much better condition at the north yard, as the brood-nests are heavy, while in addition the bees there stored a nice little surplus.

Owing to the high price of sugar and the difficulty of getting it at any price, many have written me as to the advisability of feeding the little dark honey they have in lieu of granulated sugar. In many sections of Ontario what little honey has been stored is mixed with honey-dew, and I would not feed such stuff under any conditions. If the buckwheat honey is in such shape that it has to be extracted, then I would prefer to feed sugar syrup instead of the honey, even if I paid as much per pound for the sugar as I could get for buckwheat honey. If the latter is in good sealed worker combs, then I would lower such combs into brood-nests instead of extracting the honey and feeding it back, or of selling the honey and buying sugar. In feeding extracted honey, at least one-third as much water should be added, and the mixture brought to a boil before feeding.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

A recent trip from San Francisco down the San Joaquin Valley gave me an insight to that vast fertile region where the bee business will increase faster, perhaps, than in any other part of the State within the next few years.

* * *

The editor thinks it may be better to recommend the old cage-introducing method instead of smoke "for a while yet." That is the conclusion I came to last autumn after I had lost some fine queens for which I had paid out the cold cash. This year I had better success with the smoke method, but am not yet ready to pronounce it infallible.

* * *

Indications are that nearly all colonies in this part of the State will go into winter in excellent condition. The main object now should be to leave plenty of stores to allow the bees to breed up quickly in the spring, for the probabilities are that the spring flow will be short and sweet; at least that is usually the case following a good season.

* * *

The picture on pages 634-635, is worth a year's subscription to any lover of pictures, and especially to those who are lovers of both pictures and bees. If there is any one thing I am a lover of it is pictures; and a magazine with plenty of illustrations is far ahead of a plain copy. Take the *National Geographic Magazine* with its pages rich with the finest of pictures, and you have one that is hard to beat.

* * *

Sugar advanced 100 per cent in one week; flour advanced the same week, while wheat declined. Pastries sweetened with honey advanced according to the advance in sugar, but honey is merely holding its own in price, with the danger that the game of slaughter across the Atlantic may cause a temporary decline. Why should not honey advance as well as sugar, when honey is used to sweeten much of our pastry?

* * *

The following quotation from Mr. A. F. Wagner, of Imperial Co., appealed to me as being of especially sound sense. "One word more, and this for inspectors: Don't put too much dependence on your judgment as to whose yards should be inspected and whose not. You may be mistaken. Foul brood is inside of the hives, and you will find it where least expected." Mr. Wagner is right. Every colony in the county should be inspected, regardless of its owner's standing, and this is the only way we can hope to eradicate disease.

* * *

The beekeepers of Minnesota, Wisconsin, and Iowa have organized a co-operative association. Unless the beekeepers there are different from those in California, the organization will not last long, *unless* they stand by the association. The farming class are very hard to keep together in a mutual co-operative business. I know this by past experience, in that one time I was a member of an organization of potato-growers in the Kansas River Valley. Things went along very nicely for awhile; but a few growers came to the opinion that they knew more than the heads of the association, and they actually sold for more than the association could secure for them, which was, after all, only a plan of the buyers to disrupt the organization. It worked, too, and the growers were soon at the mercy of the dealers as before. The mere fact that a beekeepers' organization concludes to handle its own production should not be a sign that they are expected to "bull" the market to the limit, but more a sign that they are concentrating the marketable output of the producers at a point where the buyer can secure quickly and easily what is needed for his trade at a fair price, and yet have the producers all receive a fair price.

Another thing that an organization should keep in mind is the guaranteeing of the cleanliness of their product. I dislike to say revolting things about beekeepers; but it is a fact that there are some of the sloppiest, dirtiest, most unclean methods used in some of our California apiaries—not as a rule, but it crops out here and there over our domain. A woman's kitchen can often (and generally) be judged by the tidiness of her kitchen dress, and it is largely so with the appearance of our beekeepers. Think of taking a big spoon to scrape the larvae off the strainer so the honey can get through! or an open tank standing under the extracting-house with holes in the floor large enough for beans to drop through! Well, both of those conditions have been noted in the past, and I dare say they are still to be found. This is not a very good advertisement for California honey, but such men do not deserve to sell their produce at any price.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

"A recent writer recommends allowing bees as little as from six to ten pounds of stores for winter. Another writer, in a different agricultural paper, gave fifty pounds as the required amount. This is very confusing, especially to the beginner. How much food does each colony of bees require in order to winter successfully?

Well, these things are often very confusing to the beginner, and I do not wonder at it. However, as a rule the writer of an article in any of our periodicals cannot go into all of the minutiae connected with the subject written upon, because it would make too long an article. That none need be thus confused, my advice to all beginners is to purchase one or more of our valuable books on bee culture; in these they will find most if not all they want to know.

While I do not think that fifty pounds of honey should be required to winter a colony of bees under any condition, yet the amount required depends very largely on the location, whether the bees are wintered in the cellar or on the summer stand and upon what is meant by "winter." It should be plain to all that more stores are required where the winter lasts from October 20 to the middle of April, as it does sometimes here in our northern localities, than in a latitude like that of southern Ohio, or in some sheltered nook where the mercury rarely if ever touches the zero mark. I presume that the writer who gave from six to ten pounds of honey as a right amount for stores had in mind the "fuel" required to keep the colony warm but not to supply them food for brood-rearing in the spring. He probably argued that this scanty supply of food tends to make the bees retrench, so that they use this supply only as fuel, and thus early brood-rearing, which is supposed by many to be of no advantage in cellar wintering, is done away with. According to his theory he winters the bees at little cost, and at the same time places them in a condition which is most conducive to their prosperity, where spring bloom furnishes a supply of nectar as soon as the colonies are placed on their summer stands. I cannot think that any writer would give so little an amount in the fall as sufficient to last the bees till honey comes from the fruit bloom the latter part of May. Most of those who advocate a small amount of stores provide themselves with a supply of frames full of sealed honey, reserved to fall back upon when the supply given in the fall is about to become exhausted.

The one thing which I see against this short-store plan as given by its advocates is that, in our locality, the bees might run out of stores at a time when it would be impossible to supply their wants on account of protracted cold after the bees are out of the cellar for the season, thus increasing the probability of loss. I well remember when I once lost two good colonies by starvation during a cold two weeks the fore part of May.

Years ago, when I first began to keep bees, I thought that each colony wintered on the summer stand should have at least 30 pounds of honey to carry them to the first of May; but after repeated trials I am fully satisfied that 25 pounds is just as good as 30; and I find that not one colony in 25 will consume 20 pounds during this time. The only reason for giving the 25 pounds instead of the 20 lies in the simple fact that the bees will retrench when their stores are getting low; and if this retrenching comes when the bees ought to be rearing brood, then we are losing largely by not having honey enough in the hive to keep brood-rearing going as it should. I think it is well in this locality if all colonies on the summer stands should have at least ten pounds of honey in their hives the middle of April, to give the bees the confidence they need to start out right for the season; for with this amount of stores they will not feel the need of retrenching unless the season is one of unprecedented cold, but will push brood-rearing rapidly. If they can be wintered on 6 pounds up to this time, so much the better; but if at this time they do not have plenty of honey it should be supplied to them in some shape.

For cellar wintering I allow 5 pounds less honey than for outdoor wintering, finding that, as a rule, less than 2 pounds of stores per month is the average amount consumed by the bees while in the cellar. Then a good deal depends on the strength of the colonies. A very late swarm with only a quart or two of bees will not consume as much stores as will a powerful colony with four times as many bees, although the consumption of the smaller colonies will be greater in proportion to their numbers. I have carried through small colonies, or what would be more properly termed nuclei, from October to May on 5 pounds of honey, but these reared very little brood. The amount of brood reared has very much to do with the consumption of stores.

GENERAL CORRESPONDENCE

A BRIEF REPORT OF SOME OF THE SUMMER MEETINGS CONDUCTED BY THE IOWA BEEKEEPERS' ASSOCIATION

BY FRANK C. PELLETT

THE COLO FIELD DAY

Fred Hall and wife were hosts to the Iowa beekeepers on June 10. Coming at a very busy season the attendance was not as large as was expected. However, those in attendance enjoyed a very pleasant day, and many expressed themselves as largely repaid for coming. The register showed sixty names of persons present, some of whom came for more than one hundred miles to see the Hall apiary and spend the day visiting brother beekeepers.

The Halls spared no pains to make the day a pleasant one for every visitor, and many were the expressions of pleasure from those present. It is Mr. Hall's custom to remove the queens from all colonies soon after the beginning of the honey-flow; and as he has a specially fine strain, the result of about thirty years selection and breeding by D. E. Lhommedieu, from whom his apiaries were purchased, many were desirous of obtaining some of his choice stock. Mr. Hall very generously gave those present as many as they desired, with the result that the home yard was entirely dequeened during the day.

A jolly after-dinner group at the Colo, Iowa, field day, June 10.

Prof. Bartholomew, of Ames, was the speaker of the day, and gave a very interesting address on the subject, "Value of Scientific Research to the Beekeeper." Mr. Bartholomew discussed some of the problems yet to be solved, and outlined some of the things that the individual was hardly in position to undertake, but which can be carried out by such an institution as that with which he is connected. Mr. Bartholomew is especially well equipped for scientific work, and we are expecting great things for the Iowa beekeepers as a result of his work at the college. Many subjects were discussed informally during the day, and some expressed their determination to attend as many more of the summer meetings as possible.

IOWA FIELD MEET AT DELMAR

The field meet at the Coverdale farm on July 7 was the fourth in the series of summer meetings. About seventy-five were in attendance, some of whom came long distances. Among the visitors from outside the State may be mentioned C. P. Dadant, of Hamilton, Ill., and L. A. Syverud, of Canton, South Dakota. Delmar is not very accessible to the beekeepers of Iowa; but the Coverdale farm is of unusual interest, and those present felt well repaid for the effort necessary to reach the place. About 150 acres are at present in sweet clover on the Coverdale farm, and sweet clover was the principal subject of discussion. There are about 300 colonies in the apiary which is kept at home. Formerly Mr. Coverdale looked after a series of outyards; but by increasing his acreage of sweet clover he soon found it possible to keep as many colonies in his home yard as he could well care for in connection with his other large interests.

Some of the "big guns" at the Delmar meeting at the Coverdale apiary, July 7, 1914. Frank Coverdale, Prof. E. C. Bartholomew, C. P. Dadant, and Secretary S. W. Snyder.

There were nearly as many in attendance from Missouri as from Iowa. Much time was spent in looking over Mr. Strong's apiary and in informal discussion. Nearly every person present was interested in beekeeping, the merely curious not being in evidence.

Atlantic, Iowa.

Field Day and Picnic at Des Moines

BY F. C. SCRANTON

About 100 people gathered at the Dustman apiary on the Colfax interurban near Des Moines on July 15. A nice social time was had during the morning, and at noon the tables were spread with good things from the generous supply of baskets.

In the afternoon the meeting was called to order by Pres. Schweer, of the Polk Co. Beekeepers' Association, and Rev. Mr. Grantham pronounced the invocation. This was followed by a talk on good fellowship by Judge A. P. Chamberlain. Prof. C. H. Tye, of Drake University, spoke on "Bees as an Economic Friend of Man." Prof. Tye showed in a very concise manner scientific proof of the value of bees as fertilizers.

Being extensively engaged in raising cattle and hogs, as well as hay and grain, one wonders how they find it possible to care for as many bees as they do. For seventeen years sweet clover has been raised in constantly increasing areas until it is now the principal crop on the 400-acre farm, and everything else is planned with a view to utilizing this crop to the best possible advantage. The ladies of the household spread a bountiful repast for those from a distance. There were the usual talks and discussions, although these were cut short by a rain in the afternoon. Altogether the occasion was a very pleasant one which will be long remembered by those present.

THE CLARINDA MEETING

The seventh of the Iowa meetings, held at the Strong apiary on Aug. 12, was not as largely attended as some of the others, but the interest was equal to any of them. Mr. E. J. Baxter, and M. E. Darby, State Inspector of Missouri, came from the greatest distances. Mr. Baxter and Mr. Darby both spoke on matters of interest to the beemen.

The Clarinda meeting, Aug. 12.

The Delmar meeting, July 7.

This was followed by an explanation of the purposes of the organization by Pres. Schweer, of Valley Junction. Prof. C. E. Bartholomew, in charge of apicultural work at the State University, spoke on scientific beekeeping, and impressed upon his audience very clearly the application of Mendel's law in the improvement of bees. F. C. Pellett, State Bee Inspector, talked on "Diseases of Bees." Hamlin B. Miller, proprietor of a printing business in Marshalltown, and a man who is getting fun, health, and profit from his bees, spoke upon applying business principles to the production and sale of honey. R. H. Longworth, a specialty farmer of Polk City, gave a talk on various uses to which honey can be put.

In addition to the above program, B. A. Brown, who last year cleared about $1100 from his apiary on a city lot, dissected a hive of bees and gave the frames of brood and bees to a number of people in the audience, children included, and had their pictures taken. Mr. Brown runs his bees merely as a side line, his principal business being that of an accountant. F. C. Scranton, of Des Moines, gave a demonstration of extracting honey.

Beekeepers came from a distance, and all considered themselves very fortunate in being able to attend.

Des Moines, Iowa, July 17.

Report of the Meeting at Mt. Pleasant, July 28

BY J. W. STINE

The opening prayer for the devotional was offered by Professor Liest, of the Iowa Wesleyan College. The scripture lesson was taken from I. and II. Peter, in which a swarm of bees without stings is mentioned. Mr. Mills, the mayor of the city, then gave an address of welcome which was greatly appreciated.

Owing to the fact that nearly all our beekeepers' thrashing was in full swing in nearly every community, not nearly as many people were present as was anticipated. Nearly all the subjects were duly discussed with much profit to all present. Nearly every one who had subjects assigned was present. The picnic dinner at noon was greatly enjoyed by every one.

Meeting of bee congress, September, 1907, at Taquary, Brazil. First session of the "Syndicato Apicola Riograndense." "This syndicate is still in existence, and has lately held its sixth congress in Hamberger Berg."—EMIL SCHENK, Taquary, Brazil.

It was voted to make our next summer meeting a tri-state meet wth Illinois, Missouri, and Iowa, holding it at Hamilton, the home of the *American Bee Journal.* The Dadants assure us a hearty welcome in coming to Hamilton.

Mr. Moore, of Illinois, Mr. Holekamp, of Missouri, and J. W. Stine, of Iowa, were appointed a committee to make arrangements for this meeting.

Some new members were taken into the Iowa State Beekeepers' Association, and all eyes are turned toward Ames, where our next annual State convention is to be held the latter part of November.

A practical conference of traveling apicultural teachers in Brazil.—Photographed by Emil Schenk, Taquary, Brazil.

Salem, Iowa.

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FIFTH ANNUAL FIELD DAY OF THE CONNECTICUT BEEKEEPERS' ASSOCIATION

BY L. WAYNE ADAMS

The fifth annual field day of the Connecticut Beekeepers' Association Oct. 1 was the largest in attendance in the history of the organization. More than 125 enthusiastic beekeepers from all corners of the State gathered at the apiary of T. L. Pratt, in the ancient and historic town of Wethersfield, made famous by its Webb house, at which Gen. George Washington stopped for several days, and in which was planned the Revolutionary campaign resulting in the capture of Cornwallis at Yorktown and the termination of the war.

Lack of time prevented the beekeepers from visiting this ancient shrine, but through the courtesy of Warden Garner they were permitted a visit through the Connecticut State prison, and 121 people availed themselves of the privilege.

Mr. Pratt proved himself a royal host, and spared no pains to make the event pleasant to all. His house was elaborately decorated in gala attire, displaying freely the national colors.

The morning resolved itself into an informal gathering, inspection of the neatly arranged apiary and equipment, comparing notes, renewing and forming new acquaintances, and the enrollment of fifteen new members.

At noon, beneath the shady trees and amid the musical hum of the bees, the members partook of a basket lunch while the host dispensed coffee, bananas, and sandwiches.

The afternoon program took the form of a "round-table" talk upon the following subjects:

"Putting on and taking off sections."

"Kinks of the swarming season."

"Watching for foul brood."

These questions were freely discussed by Pres. Bunnell, Inspector Yates, Messrs. Root, Vanderverken, and others who imparted many valuable suggestions.

Arthur C. Miller, of Providence, who was detained by illness, prepared and sent a paper which was read, entitled "Why Beekeeping should be taught in the Agricultural College," advancing many forceful and logical reasons in favor of such a project.

It should be mentioned that the Connecticut Beekeepers' Association has striven for some time to have an apiary installed at the Connecticut Agricultural College, and it looks now as if its labors would bear fruit, as President Beach, of the college, has given his consent.

At the close of the afternoon's program the members assembled for a photograph, and promptly at 3:15 formed in column of twos, and, marshaled by Major Wm. C. Steele, a veteran of the civil war as well as beekeeping, proceeded to the prison, where

Monroe County (New York) fielding meeting held at the apiary of D. W. Trescott, Conesus, N. Y., June 20.

the major placed the Connecticut Beekeepers' Association behind the bars. It is needless to say that none remained after they had been courteously shown through the institution.

This ended the day's program, and the members departed for home pronouncing this field day one of the banner events in the 23 years' existence of the organization.

The day was all that could be desired by way of temperature and sunshine, and it was evident from the pleased countenances that all had enjoyed a royal good time.

Hartford, Ct.

THE TWO FIELD DAYS IN MEDINA IN JULY

BY E. R. ROOT

On p. 766 is a picture of the beekeepers who met at Medina at the time of the field days of the Ohio State Beekeepers' Association, July 9 and 10. This picture was taken in the forenoon of the second day, and represents something over a hundred people. On the evening of the first day there were present at the evening address something like 500 people, many of whom were Medina citizens who had come to hear A. I. Root's experience in the early days when he had many ups and downs—more downs than ups. A copy of this address has been running in GLEANINGS, in the August issues. After this picture was taken on the second day, the whole number were driven in automobiles to several of our outyards, finally landing at the basswood yard, where 3500 queens are reared annually under the management of Mr. Mel Pritchard.

It is possible to identify only a few persons in this group from all the rest. In the bottom at left is Pres. W. A. Matheny. On his right is Mr. L. W. Boyden, who married A. I. Root's youngest daughter. The next is E. R. Root, and the next to him is Mr. M. D. Tyler, of Seville. Mr. J. H. Donahey, the celebrated cartoonist of the Cleveland *Plain Dealer,* is in the center; and with him on his left is A. I. Root. Back of E. R. Root's left is Mr. Moore, the largest honey-producer in the State, unless it be Mr. Fowls. At the left of A. I. Root is A. I. Root second, the boy standing on his knee. Mr. Chalon Fowls, the honey-bottler, and one of the largest producers, of Oberlin, appears third from the right in the second row. In the back row, fifth from the end, is Mr. Morris, one of the State foul-brood inspectors. In the second row, on

Field day of the traveling salesmen of the Wm. Edwards Co., wholesale grocers, at the home apiary of the A. I. Root Co., Medina, July 11.

the left, first man, is Mr. A. J. Halter, the man who is managing our bees in the Hudson swamps. There were other celebrities in this crowd, but it is practically impossible to point them out on account of their position; for example, Prof. Hines, of the State University, Columbus, Prof. N. E. Shaw, entomologist and State foul-brood inspector, and last, but by no means least, Jay Smith of Vincennes, Ind., who is sometimes called " The Jay."

On July 11 we had a second field day, consisting of the traveling men of the wholesale grocery firm, the W. Edwards Co., of Cleveland. They came down here in automobiles, 65 strong. As most of them had had very little practical experience they formed a circular inclosure, in the center of which our bee men gave live-bee demonstrations. In the small picture, above, is seen State Inspector Morris and our foreman, Mr. Marchant. These two men greatly amused the crowd by pouring pecks of live bees over each other's bare backs, together with other stunts of a like nature. Your humble servant stands a little at the right, with left hand extended. He is just in the act of signaling to the moving-picture man, who came here at the instance of the Department of Agriculture, Columbus, to catch the field-day operations of the State Beekeepers' Association; but as he arrived too late the operator was put at work on the field day July 11 for the benefit of the wholesale grocers.

I was in the act, when the picture was taken, of signaling to the moving-picture man to start his machine going, for the "fun" was about to begin. And it did. This field day was just at the close of our basswood flow, and the boys said the bees were a little "ornery." They took advantage of the bare backs of the men, and began to sting, greatly to the amusement of the traveling salesmen; but, nothing daunted, they kept right on. In the mean time, some of these peppered E. R. in the face and ears; but he had to "stand and take it," because, you know, it would never do to flinch while the moving-picture man was taking in the scene. This film, I understand, will be shown at the Panama Exposition in California next summer, in one of the Ohio exhibits; but our subscribers are privileged to have a preliminary snapshot of the thing just as it was about to be pulled off.

After the live-bee demonstrations were pulled off, the crowd was conducted to one of the company's warehouses, where they were fed on hot biscuits and honey. This part of the " program" seemed to take well with all parties.

SUMMER MEETING OF NEW JERSEY BEEKEEPERS' ASSOCIATION

BY E. G. CARR

Following several days of rain, on July 8, the date for the summer meeting of the New Jersey Beekeepers' Association, at Robt. B. Spicer's apiary, near Wharton, the weather seemed anxious to do all possible to make the meeting a success. A fine view is

Fig. 1.—Beekeepers in attendance at summer meeting of New Jersey Beekeepers' Association, July 8, 1914.

had from the high hill on which the yard is located, and visitors felt repaid for the steep climb.

President C. H. Root spoke on "The Best Hive-cover," which is of the telescoping pattern, three inches deep, and made of any soft half-inch lumber, and covered with 8-oz. duck, the latter brought down and tacked on the bottom edge. This is then given three coats of good paint, and is held up from the inner cover by ½-inch cleats. This cover will neither leak, blow off, warp, nor get hot, and does not need frequent painting.

Mr. Spicer explained his method of queen-rearing. He uses the best stock for breeders obtainable, by purchase and breeding. Cells are started in the upper story of strong two-story colonies or in queenless colonies. The Root cell cup is used, and the started cells are completed in the upper story of strong colonies above the excluders. He uses the smallest larvæ possible to see, cages the cells the tenth day from grafting, discards any dark or defective virgins, cages the virgins in nuclei, uses the dual-virgin plan, and one, two, and three frame nuclei having full-size frames.

Fig. 2.—Mr. Spicer exhibiting a frame of cells.

After Mr. Spicer's talk all gathered under a tree in the apiary for a group photograph (Fig. 1). At this time a delightful lunch was served to 68 by Mrs. Spicer and her able assistants.

After lunch a paper by Harold Hornor was read, giving his experience with and his mastery over European foul brood. He used the double shake in his work, and from 51 colonies, good and poor, all of which were shaken, in a poor season he secured over 4000 pounds of extracted honey and 315 pounds of wax. He emphasized the importance of keeping *leather-colored* Italians and requeening every year. He has no surplus at all this season, but expected to requeen just the same.

Perhaps the most interesting feature of a meeting in an apiary are the groups which gather about a hive under manipulation as shown in Fig. 2.

This was the largest and most enthusiastic summer meeting ever held by the association. Several new members were enrolled.

New Egypt, N. J., July 16.

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THE QUEEN-EXCLUDING HONEY-BOARD; ITS ORIGIN AND DEVELOPMENT

BY ARTHUR C. MILLER

Honey-boards are not quite as old as bee culture, but they date back a great many years. Their origin was in the bars first put across the tops of hives for bees to build their combs to, a practice followed in Greece several hundred years ago. Another early form was one or more holes in the flat top of hives to permit bees to enter tops or upper chambers to deposit honey. From these two we find French beekeepers in the early part of the 18th century putting a slotted top into hives and placing their surplus chambers thereon. About the middle of that century both French and English beekeepers were putting a duplicate slotted bottom into the upper chamber, the purpose being the same as a honey-board to-day to prevent fastening the combs of one chamber to the other.

Thus matters appear to have remained until the so-called "old-fashioned box hive" came into use with its upper chamber for boxes, access to which was gained through holes in the floor of that chamber and corresponding holes in the boxes. This was only an easier way of securing the principle of the slots.

When Langstroth brought out his hive he had a *loose top,* spaced a bee-space above the frames, and this top was perforated with holes, as was the box-hive chamber. With such records as I have at hand I am unable to say whether he was the originator of such loose top or not. Langstroth referred to it as a honey-board and Quinby also speaks of them; but so far as I have learned the separate honey-board originated with one or the other of them.

Not long after, discussions arose as to the desirability of giving bees freer access to the surplus receptacles and that discussion has not yet ceased. With it came debates as to the wisdom of the bee-space above and below it; and the advocates of continuous passageways waged hot verbal warfare with the advocates of bee-spaces.

With the advent of sections the altercation only increased; and supers with openings exactly matching the top-bars of the hive and used flat thereon were strongly championed, which it will be seen was little different from practices of a hundred years before. As against these were supers set a bee-space above the frames, no "honey-board" intervening. But the bottom of the super was virtually the same.

About 1875 James Heddon brought out his honey-board made of slats with a bee space on its upper surface, the slats being opposite the spaces between the brood-frames, the idea being twofold, to lessen the building of bridge-combs on top of the frames and to act as a deterrent to the queen's passing into the supers. He called it at first a "sink" honey-board because the rim in which the slats were fixed was rabbeted so the slats "sunk" into until one surface was flush and the other bee-spaced. Mr. Heddon and Mr. W. Z. Hutchinson were two of the most ardent champions of this type of honey-board which gradually came to be called the "slatted-break-joint" honey-board .

Dr. G. L. Tinker, on the other hand, was a most ardent advocate of continuous passageways. Being a mechanic of very high order, and making his own appliances, he was very successful in the use of such methods. But he seems to have been troubled even more than the others with the queen going into the supers. Mr. Hutchinson tried making the spaces between the slats queen-excluding; then he tried similar spaces cut crosswise of the grain of the wood, but neither proved workable.

Mr. Heddon writing in 1885 (*American Bee Journal,* p. 262), said that during 1883 and 1884 he experimented with queen-ex-

Rural camp boys from Sydney, Australia, visiting the apiary of T. G. Adamson and G. G. Phillips, Nemingha, New South Wales. (See editorial.) *Photo by I. W. Tremaine, of the Sydney Technical College.*

cluding honey-boards, but was not at the time of writing satisfied that they were the best practical way of securing results sought.

About the same time perforated zinc, much as we now know it, came into use, but in full sheets for honey-boards it was unsatisfactory, as it would twist and "buckle" and not maintain a true bee-space.

The step of uniting the slats and the strips seems so obvious now that we wonder it was not thought of even before it was.

The inserting of strips of zinc between the slats was described by Dr. Tinker in GLEANINGS in 1886, p. 203. James Heddon writing in GLEANINGS in 1888, p. 394, says after referring to tacking zinc to the surface of the strips: "Then came the thought of grooving the edges of the slats and sliding strips of zinc into the grooves as the honey-board was nailed up, which was quicker done, and made a neater and far more attractive job; and C. E. Boyer, W. Z. H., Dr. Tinker, and myself, all thought of this simple device without the aid of each other; but as Dr. Tinker was the first to publish it to the world, no one opposed this priority nor should they." And on the same page Mr. Heddon suggests making the rows of holes in the zinc in pairs, two rows close together as it is now made.

To Dr. G. L. Tinker belongs the honor of the modern queen-excluding honey-board.

Providence, R. I., July 8, 1914.

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DANGER OF FOUL BROOD; PREVENTION BETTER THAN CURE

BY L. W. CROVATT

"We have no such thing as foul brood, either of the American or European kind in this, the southeastern section of the country."

"No; but you will have, rest assured of that. It is only a question of time."

I very much fear that I gave a smirk of self-satisfaction when, one day last week, I made the remark in the opening paragraph. Mr. A. Irish, an Englishman of Connecticut, and I were walking on the streets of Savannah. Both of us were beekeepers, hence the conversation was simply and solely about the honeybee.

Reflection has only added positive assurance to this convincing line of reasoning. There is no doubt but that foul brood will some day—perhaps within the next few years, who knows?—establish itself in this fair southland of ours, so I am trespassing upon the kindness of the editor and using perfectly good space in GLEANINGS to issue a warning to fellow beekeepers. The biggest beemaster, as well as the smallest (perhaps the one-hive man) should begin to spread the gospel of preparation and thereby safeguard their own interests—*now.*

It is the box-hive beekeeper, friends, to whom we must in some manner carry the work of enlightenment. Thereby hangs our own salvation from a beekeeping standpoint. Tell the unprogressive, ignorant keepers of bees in box hives that he must eliminate his *"gums;"* spend a few dollars for modern appliances, or else go out of the business. He will make back his money with interest the first year after changing over to modern methods, and it is especially the fellow with his few box hives "who doesn't yet know that the civil war is over" whom we must convince, first of all, that it is to his personal interest to change over from antiquated methods of a past and forgotten age.

"When foul brood does hit this section of the United States it is going to be a veritable blessing in disguise," my friend continued, "for it will sweep away the black bee from the face of the land; our box-hive men will be put out of business, and it will be the specialist with his hundreds and even thousands of colonies who will then control the production of honey."

Even so; Mr. Irish may be right; and yet, friends, can we stand the cost in actual money to us? Will not the big man as well as the little fellow, the progressive as well as the unprogressive, suffer alike in losses?

Assured the specialist; the up-to-date-bee-journal-reading man; the wide-awake intelligent man or woman will finally prevail against the disease, but at what cost of time, labor, money, and anxiety?

Would it not be better to spread the warning now far and near—to convert, as it were, the box-hive old-gum man into a modern beekeeper?

It is well worth the trouble, my friends; let us be up and doing.

Now there may be some who would reason like this: "No chance on earth; never any foul brood in this section." Listen—here's the point: If you buy a queen and she comes in her cage with workers as attendants and you introduce the queen to a colony, and the man from whom you bought her had foul brood and did or did not know it, what about the chances of the disease appearing?

Do as the big fellows have advised; turn the queen and her attendants loose in a room near a window with lights down or sashes if you please; recage the queen in a fresh cage and kill every worker and burn the whole shooting-match. Not much effort at that; isn't the precaution worth while?

In conclusion, let me emphasize with all the vigor at my command, that, if you want a queen, be sure to get her from some powerful fair-dealing, painstaking breeder, then your chances are reduced to a minimum from a contagious standpoint.

Foul brood is assuredly a thing to be reckoned with in this "locality" some day, and it behooves us, as progressives in the business, to use every effort to eliminate now and forever the abomination of beekeeping in the Southeast—the box hive and the genus gum. Let's get busy *now.*

Savannah, Ga., April 19, 1914.

TEN GOOD "DONT'S" FOR BEEKEEPERS FEARING FOUL BROOD

BY V. V. DEXTER

For some time I have thought of writing an article on foul brood from the standpoint of the honey-producer. We have had plenty of articles from the bee inspectors and the queen-breeders telling how to cure this disease, but it seems to me that it is a great deal more important to keep from having a disease than to cure it after we get it. Where whole apiaries have become rotten with American foul brood, I hold that it is usually the fault of the person who is caring for said bees by neglecting to keep watch of the brood-nest, and by spreading the disease from hive to hive. There may be localities where there are so many shiftless beekeepers and so much foul brood that it is impossible to keep bees healthy, but I doubt if there are many such.

Three years ago I had typhoid fever and it was impossible for me to care for my bees as they should have been cared for. In taking off the honey late in the fall we found one colony dead from foul brood and two others diseased, in a yard of about a hundred. We promptly burned them, saving samples of the brood which were sent away to make sure. Early the next spring that yard was looked over and five colonies showed signs of disease. They were also burned. The next year one had to be destroyed. I haven't seen a sign of disease in that yard since.

Another yard of sixty colonies which I bought had five diseased colonies. The next year only one infected hive was found. Now they are perfectly healthy. If I had fussed with those few diseased colonies, I might have two badly infected yards by now.

Here are a few "Don'ts" which I have found useful:

1. Don't expose to robbers combs from hives containing dead colonies, nor use them if you are not sure that they are free of disease.
2. Don't neglect to examine brood in all colonies at least twice each year.
3. Don't make a practice of feeding unboiled honey, nor of allowing robbers to get any more honey than possible at any time.
4. Don't set out extracting-supers for robbers to clean out.
5. Don't change combs nor extracting-supers from one hive to another unless both hives are known to be healthy.
6. Don't neglect to burn all diseased hives as soon as found unless there is a large per cent of the apiary infected.
7. Don't open diseased colonies when robbers are bad.
8. Don't neglect to get all the information possible on the subject.
9. Don't neglect to tell the dangers of foul brood to your neighbors.
10. Don't make the inspector force you to clean up. Stay clean.

The first "Don't" is good to observe any way. It does no good to let robbers get started on honey of dead colonies, and probably more disease is spread this way than any other. If any symptoms of disease are seen in dead colonies, melt up or burn the combs immediately.

I find it pays to examine the brood of all colonies at least twice a year. It is good to keep track of the work of the queens anyway. If there is no foul brood in the neighborhood, this examination may be done in connection with other work.

A beekeeper feeding unboiled honey, especially in the open, takes a great risk, for one ounce of infected honey mixed in with the rest might spread disease through the whole yard as well as to neighbors' bees.

I have found that setting out extracting-supers to be cleaned out by the bees is a poor plan, as it seems to wear out their vitality just when they need it most to go into winter quarters. Moreover, if one of those supers is from a diseased colony, it may infect the whole yard.

In extracting at a yard where there is the least possibility of disease being present all extracting-supers and combs should be placed back on the colonies from which they were taken. It is not difficult to number all hives and supers with chalk before extracting so as to know where to return the supers, and it makes it safer and nicer in extracting to use queen-excluders.

Burning diseased hives may seem harsh treatment, but it is not necessary to burn more than the combs and bees. The hive-body, covers, and bottom-board may be saved if they are scorched out.

Does it pay to fuss with a few old bees and some diseased brood and risk ruining the whole yard, and maybe give your neighbor a nice mess of trouble? Remember the combs must be melted or burned any way. It may pay to treat bees if a large per cent of the yard is diseased, but what I wish to emphasize is to care for a yard so that it will get disease only from outside sources.

North Yakima, Wash.

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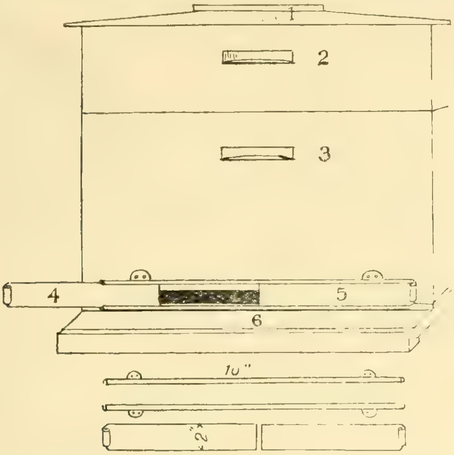
A PERMANENT DEVICE FOR REGULATING THE SIZE OF THE HIVE-ENTRANCE

BY J. E. JORDAN

The accompanying illustration shows an entrance-closing device which may be used on a full-sized hive, or with a little modification on a nucleus hive. In the latter case only one slide would be necessary.

I have often been obliged to make a search for blocks of wood to contract the entrance; but, try as hard as I can, I am not able to keep them where I want them. Then, in the event of a severe case of robbing, something is needed at once to close the entrance; and a good deal of trouble is saved if one does not have to go on a scouting tour looking for blocks, grass, rags, or any thing else that comes handy. After contending with this sort of thing for some time I devised these slides which we have used with a great deal of satisfaction. Galvanized steel or aluminum should be used, as these materials do not rust and will last forever.

If the colony is being robbed out, simply push both sliding doors together and the entrance is closed. In the early spring when the colonies begin to breed up, contract the entrance with a simple push and the job is done. During the honey flow the entrance can be widened to full width by pulling both doors out.



To the queen-breeder especially, a device of this kind for a nucleus hive is a blessing, for many times the entrance to the nucleus must be contracted or closed entirely, and if one has 750 such nuclei to go over each day, as Mr. J. P. Moore and I have, the importance of this matter is evident. When forming nuclei the entrance of each one must be closed and left closed for a short time. That procedure ordinarily calls for blocks to be nailed on and taken off. Then, as in case of a full colony, there is robbing to contend with and the block or grass has to be produced again. Most of all, when caging a queen or examining a nucleus for a queen during a time of honey dearth, there will be a hundred robbers around in no time. It has always been our plan to stuff the entrance with grass, but there is no need of this now, when with a slight push of our fingers we can extract or close the entrance.

Morgan, Ky.

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NOTES FROM INDIANA

BY S. H. BURTON

LITTLE WHITE CLOVER.

We cannot possibly expect a white-clover crop for two years, as last year's drouth killed out most of it, and this year finished up the young plants that came from the seed. I have searched diligently for a white-clover blossom this summer, and the only ones I have seen were on a well-kept lawn in town. It will be quite a while before southern Indiana produces another white-clover honey crop.

MORE THAN A CARLOAD OF HONEY FROM DAVIESS COUNTY.

This county is looking up in the bee business. One hardware dealer in town advised me that he had sold 17,000 sections up to Aug. 1. If we take into account what beekeepers order for themselves and what is sold by other firms this county (Daviess) produces more than a carload of comb honey yearly.

TEN COLONIES SOLD FOR POLLINATING PURPOSES.

This spring we sold to the Illinois Experiment Station ten colonies of bees for pollinating purposes in their apple-orchard at Flora, Ill. Prof. W. A. Ruth, in charge of this station, reports excellent results from having the bees in the orchard. A number of experiments were tried, such as tying netting over trees to exclude the bees, moving the hives to different parts of the orchard and observing if the trees nearest the hives set more fruit than those further away. They will issue a bulletin soon which, I presume, will furnish some valuable data on the relation of bees to fruit.

GOOD LATE FLOW.

After poplar ceased blooming, the bees never "turned a wheel" till Aug. 8, when our fall flow started in good earnest, and I have been on the jump ever since, trying to supply the colonies at our outyards with empty supers. One yard I have in the river bottoms filled the supers to overflowing in ten days from what is locally known as bluevine. I am unable to classify it botanically, but will say that it is a great yielder of water-white honey that is hard to distinguish from white clover. This vine resembles a sweet-potato vine in appearance, and is very prolific in river-bottom cornfields, having a small white flower resembling a miniature morning-glory blossom.

Fall aster and goldenrod are very abundant in this locality; and if I could get the bees to separate the honey and store all goldenrod in the super and all the aster in the brood-chamber it would save a lot of work at sorting time. Fortunately the aster blooms a little ahead of the goldenrod, which prevents a great deal of blending of these two flavors.

Washington, Ind.

The field day of the Ohio State Beekeepers' Association at the home ap f the A. I. Root Co., at Medina, on July 9 and 10, 1914. See page 758.

Beekeepers' picnic held at the Dustman a y. near Des Moines, July 15 See page 755.

"STUNG." AN INSTANCE OF FEARFUL AND UNUSUAL STINGING

BY OPIE QUEUE

In my diary for 1913, in the space designed for Sept. 17, I have written just one word. It is short. To a stranger it might seem meaningless and absurd. Beekeepers, whether veteran or novice, might even regard it as ridiculous. Nevertheless, the word is there, and it is not only short, but it is pregnant with truth, and I assure you that it will never fail to serve its purpose, namely, to recall to my mind, should recalling ever be necessary, a memorable occasion of my life. This word, as recorded in my diary, reads: "Stung,"—nothing more, nothing less.

I fancy there will be scores of beekeepers who will smile as they read this, and say: "Here is a novice; here is a fellow who harps on trifles and even records such common, every-day occurrences as bee-stings in his diary."

And then I hear another beekeeper say: "But he'll get older by and by." And a third adds: "And wiser, too." All of which goes to show that, though I may be young, and a novice, and may get older and wiser, these friends of mine, even if they be veterans at the game, do not yet know what it actually means to be "stung." Understand: I was not stung by a quack doctor; I was not stung by a real-estate agent nor by a gold-brick concern nor by a mining promotor. Furthermore, I was not stung by a wasp nor a hornet nor by your humble bumblebee. No, I was stung by bees, by dozens of them, by hundreds, yes, by thousands of them. For all I know I was stung to within an inch of my life. Of one thing I am certainly convinced, and that is that, had I not to some extent been accustomed to bee-stings, my life would have been very nearly if not altogether snuffed out. Indeed, even as it is I am very thankful that I was able, by the help of God, to survive.

As I said above, it was on the 17th of September. But to understand why the bees acted in this outrageous manner, it will be necessary to go back somewhat and consider the management and condition of the bees during the summer, and for the benefit of those who may be interested I shall therefore do this, even though in so doing I should expose myself as a very poor beekeeper.

When the white-clover flow came on, I was in possession of two colonies of bees, and shortly afterward I had a swarm, making three. The flow of nectar during the last season was a revelation to me. The supers gained in weight by leaps and bounds. When the flow was but half over, I had more than a hundred pounds of honey on each of the old hives. About at this time, the end of June, I planned to leave with my family for the West, there to spend the summer vacation. Quite naturally my bees gave me much concern. The honey on the hives was not at all ripe enough to extract. Moreover, the heat during midday was intense. One day some combs on one hive began to sag and melt. I therefore tilted one end of the top supers on each hive up and placed inch blocks under them for ventilation. That helped, it is true, but what was I to do for the summer? I did not feel like letting them act like this, and at the same time I was afraid to take them away. There was nobody in my neighborhood who kept bees or to whom I could,, in the few days left, have given instructions sufficient to enable him to manage them properly during the summer months. One or two days before leaving I therefore put another empty super on each hive, placing those that were full above. Thus, with the exception of the young swarm, each hive was five and one-half full stories high, including the hive bodies. I fastened and braced them firmly to the ground, so that there was no danger of toppling over during my absence, and as the weather promised to continue hot for some time I left the top supers propped up as indicated above. Then we went west, leaving the bees just as above described to their own devices throughout the summer months of July and August.

When we returned early in September I was delighted to see that everything pertaining to my bees was in first-class shape. The hives, man-high, still stood as I had left them, and they were fairly boiling and buzzing with busy little workers. But during the first few days I was unable to go at them. I went near them several times, it is true, but that was all. But even so I noticed something about them that was very peculiar. At all other times docile and manageable, they were now quite the contrary. Even while only approaching them they would buzz around me and fly into my face and sometimes even sting without the least provocation imaginable. I attributed this to the large openings under the top supers, which, as I have said, I had left during the summer for ventilation. No doubt some bees had been trying to rob, making them vicious. One night I therefore went down to the hives and removed the inch blocks, hoping that now they would cool down. But they did not, and when I went to them for a thorough examination on the 17th of September I got all that was coming to me, and a little more.

It happened in this wise: But first let me tell you how I was armored. I wore nothing on my head, no hat nor anything of that kind, but I had on an Alexander bee-veil. This I had long before carefully sewed up wherever I thought a bee might find an opportunity to enter, and I carefully tucked the lower skirt-cloth under my coat. Then I had on heavy summer underwear and a pair of overalls, the legs of which I stuffed into the tops of my shoes. I also wore a pair of long-sleeved bee-gloves, such as one buys of dealers. Thus armed, with smoker ablaze and hive-tool in hand, I marched bravely to the front.

Now, tell me honestly, do you think that the bees had sense enough to let such a formidably protected foe as me alone? If you do, you are off the track and have another guess coming. I was just the prey these little amazons were looking and waiting for. Barely had I begun to peel off the oilcloth, after taking off the cover, when they roared out by scores and scores. Smoke was as nothing to them. Even the big healthy volumes of puffs that I had funneled into them before touching the hive had not cooled them down a bit. And it was ridiculously useless to give them more, though I tried it. They came out just the same, and wherever they fell down on me, there did they locate. But then, I was a beekeeper, and, moreover, one of four years' standing, and such a one will not be daunted, you know. I thought, if they were absolutely bound to be crazy, why, crazy it was for them. As for me, that made not the shade of a difference to me. The next thing I did was to take off the top super. You see, I just kept on minding my own business. For that matter, however, so were the bees, and the next thing I did was to slap that same super back again without having examined anything. There was no chance to examine anything. I was literally covered with bees, every one of them wiggling and wheeling around, with their little sabers deep, deep into the armor of their foe. Oh! I cannot tell you how many there were. They stung through the cloth of my bee-veil into the top of my head and into my neck; their stings went right through my bee-gloves, unbelievable as that may seem. About twenty or thirty of the little imps got into my bee-veil, though I cannot even to-day see how they could possibly do it. To make matters worse, my overalls slipped out of my shoes, and there, just above the ankles, they settled down, a dozen or more to every square inch of surface. A mere matter of heavy cotton socks and thick underwear made not the least bit of difference to the vicious little beasts. I got my medicine all right.

Having closed the hive, I slowly walked off in a direction away from my house, for I did not want to have the bees go there with me and sting my little children. About a hundred yards from the hives, at a place where there are several trees and a number of bushes, I stopped to do away with my tormentors. I swept them off my clothes by handfuls, and tried to kill every one. But those that I did not crush got right up again and went at me for the second time. It took me about twenty minutes till I was reasonably clear of the frenzied little things. The dead bees that were on the ground would have measured several quarts, had they been swept up. In places my clothes were literally white from the multitude of stings that remained in them. And even as I walked away from this place several bees kept coming after me, stinging, buzzing, bumping. However, as I went several hundred yards north into a cornfield, and thence in a wide circle to my house, I gradually either killed or shook off all of them.

Now, some may think that it was pain that drove me away from the bees. Such, however, was not at all the case. Though I was stung hundreds upon hundreds of times even on my head alone, the pain, owing, I suppose, to the fact that I had frequently been stung before, was infinitesimal, and I did not give any attention to it. But I did feel fearful of that which might result from so much poison suddenly injected into my system; and, as the following will show, I made no miscalculation.

While I was still at the bees, the stings resulted in nothing extraordinary or peculiar. I felt the stings, it is true, but the pain was hardly noticeable—in fact, infinitesimal. But even while retreating from the hives and going to the shrubs mentioned, action of the poison became apparent. I felt a warm, almost hot, glow over the surface of my whole body. While brushing off the bees, there among the shrubs, a profuse perspiration began, and it continued until I had completed the roundabout way back to my house. So profuse was the perspiration, that, though it was not a warm day, large drops of water streamed down my face and dripped to the ground from chin and nose, and my clothes, even my coat and shoes, became thoroughly wet. Having removed my veil and gloves, I went into the house and sat down, still perspiring. My wife remarked that I looked "awful." Examination by means of a mirror proved her statement correct. My face was swollen almost to purple. However, I felt fairly well and therefore had no fears.

Now, there was some trifling repair work that my wife had asked me to do, and I needed a small piece of lumber for it. As I continued to feel quite well, I now soon went to the barn and by means of a ladder climbed to the second floor, about seven feet from the ground, to get that board. But when I was up I noticed that something was quite seriously wrong with me. My heart now fluttered and pumped quite violently, and then again it seemed to cease action altogether. I feared that I would faint and fall down. Evidently the poison, together with the exertion of climbing the ladder, though ordinarily but trifling, was getting too much for my heart, so I went down again. I am glad that I did, for as soon as I reached the lower floor everything vanished from my sight. I thought I would faint; but although I felt weak and rather dizzy, I did not. It was only the power of sight that left me. My eyes had given out completely—so much so, in fact, that I could not see a thing. It seemed as if I had suddenly been transported into the darkness of midnight. The action of my heart grew weaker and weaker and was at times not at all perceptible. In a few moments, however, my sight began to return, and, though I could as yet see merely the dimmest of outlines of various objects, I started to walk to the house. Immediately, however, my sight again failed entirely, and I groped the rest of the way to the house, a distance of about 75 feet. As I neared the door I could again see just a little, though not for long. And thus, for nearly a half hour, my condition continued, fluctuating now to total blindness, and again, after a few moments, to dim and indistinct sight. My limbs, too, became limp and weak, and the action of my heart continued very irregular and extremely faint. Consciousness and reason, however, at all times remained, though at times greatly depressed.

My wife says that I now looked ghastly and was deathly pale. Quite naturally she was alarmed. She ran to a neighbor's and asked him to come over. With his assistance I walked outside into the fresh air, thinking that this would stimulate me. It is remarkable that I suddenly felt an urgent necessity of attending to a common physical want. Still more remarkable, after a free and thorough movement of the bowels, my eyesight suddenly became fully normal, and the action of my heart nearly so. The period of danger was past.

Pertaining to the further effects of the poison a few things yet remain to be told. First, I at no time had any direct pains that were worthy of being called such. Then, though in my first two years of beekeeping every sting that I had received had caused violent and thick swellings, only very slight swellings resulted now, and these only on top of the head, at the neck, wrists, and ankles. But a very odd circumstance is this, that on the following day I felt as though I had done a very hard day's work of physical labor the day before, for the muscles of my whole body were very sore. This one thing I cannot account for—I am glad to say that on the third day I felt in every respect normal, and have been so ever since. When I went at my bees again, I was so thoroughly protected, let me assure you, that history did not repeat. For that matter, I hope it never will.

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A NEW BEEKEEPERS' ASSOCIATION

BY OTTO HOLLANDER

Translated from the "Gaceta Apicola de Espana" of January, 1914.

A new beekeepers' association has just been formed in Porto Rico, where beekeeping is spreading very rapidly, known as "The Puerto Rico Beekeepers' Association." Its aim and object are outlined in the constitution and by-laws, which we are publishing in full, in order that our beekeepers may get an idea of some of the problems that confront us and of the manner in which these are solved in other countries.

THE PUERTO RICO BEEKEEPERS' ASSOCIATION.

First—The object of the Society shall be:

1. To promote and foster beekeeping with all of the means at its disposal.

2. To regulate the location of apiaries and endeavor to have laws enacted that will fix the distances between apiaries.

3. To seek to reduce the cost of transportation, both on land and sea.

4. To reduce the cost of the implements needed, such as honey-packages, etc.

5. To classify honey and wax, establishing different grades.

6. To acquire the more important books and periodicals dealing with beekeeping, translating into the Spanish language all of the points which may be of interest, to be published in the form of booklets.

7. To endeavor to obtain all possible information regarding the markets for the sale of honey and wax.

8. To study and promote industries in Puerto Rico in which honey and wax are used.

9. To enforce and strengthen the laws regarding the importation of bees.

10. To take steps to have laws passed prohibiting the importation of honey, and which, after having been re-exported from this country, is considered as honey coming from Puerto Rico.

11. To study the feasibility of forming an association, composed exclusively of the members of the Puerto Rico Beekeepers' Association, which will handle the honey and wax produced by the members of the association.

12. To incorporate the association with the National Beekeepers' Association of the United States.

13. To give a course of lectures and instruction in the different cities.

14. To establish friendly relations with all of the beekeepers' associations in the world.

Second—The association will be formed by all of those who are actively engaged in the culture of bees in Puerto Rico and those desiring to co-operate with us.

Third—The association is formed for a term of ten years, which may be extended for another ten years, and shall be guided by the statutes and by-laws adopted.

Fourth—The expenses shall be defrayed by the dues collected from members, as well as with the donations and subscriptions that may be received.

Fifth—The association shall be known as "The Puerto Rico Beekeepers' Association," and shall have its legal residence at Ponce, Puerto Rico.

Officers: J. W. Van Leenhoff, Pres.; Manuel R. Mejia, Vice-Pres.; Miss Antonia Clavel, Treas.

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THE MODERN INCUBATOR AS A QUEEN-HATCHER

Introducing Virgin Queens

BY J. E. HAND

Some time ago, in answer to an inquiry, ye editor made a statement to the effect that artificial incubation has no place in modern methods of queen-rearing. Believing that such a statement, emanating from so high an authority, might create a wrong impression concerning an implement that we have learned to regard as an indispensable adjunct to a queen-rearing establishment, I will endeavor to give a few of the reasons why we favor a modern incubator as a queen-hatcher.

We have learned to regard a correct and uniform incubating temperature as one of the most important factors in successful queen-rearing. While the variation of temperature under which embryo queens will continue to exist, and finally emerge from the cell several days after schedule time, an imperfect queen, is wide indeed, it is equally evident that the highest development is attained only under particularly narrow and well-defined limits. Hence it is clear that any method by which a correct incubating temperature is maintained without a single degree of variation, and free from disturbing elements, will have a long advantage in rearing queens of the highest development.

The demands upon the commercial queen-breeder are exorbitant, since he is expected to be able to rear good queens in spite of the inclemency of the weather; and if he expects to maintain his reputation, he should adopt the methods that will enable him to meet the expectations of his patrons. During the spring and autumn months, when the nights, and sometimes the days, are cold, it is next to impossible to maintain a correct temperature with queen-cells in nursery cages in a cell-building colony, where the heat center must needs be monopolized by freshly grafted larvae. On such occasions as this it is a comfort to the queen-breeder to know that the incubator will maintain a uniform temperature regardless of external conditions.

For these reasons, as well as others that we might mention, all our queens were hatched in separate nursery cages in a big Cyphers incubator, the same as we use for hatching chicks, under a temperature of 97 degrees. While this is about 2 degrees higher than that of ordinary brood-chambers at swarming time, we would rather have it thus than a little lower, especially since queens that are incubated under a high temperature are invariably handsome in color, and well nigh perfect in development, other things being equal. It is said that the color of combs, as well as the nature of the soil, has an active influence in determining the color of queens; but I am persuaded that temperature of incubation is by far the most important in deciding this matter.

There are several reasons why we prefer the introduction of day-old virgin queens instead of giving the cells the day before they are due to hatch. First, it affords an opportunity to inspect the queens and discard any that are not up to standard quality. Again, we don't like to handle queen-cells any more than is absolutely necessary, especially during cool weather, believing that a uniform temperature, free from disturbing elements, is highly desirable until the queen is 12 hours old, which we regard as the proper age for the direct introduction of virgin queens.

The caging method of introducing virgins was not a uniform success with us, for the reason that in our hands bees behave differently toward a caged virgin than toward a laying queen. Our losses were not only greater than by the direct method, but many survivors bore unmistakable evidence of rough treatment by the bees. Occasionally we would have a surplus of virgins, when we would cage them on the dual plan as mentioned by the editor, page 372, June, 1913. We learned to regard this as a calamity, however, for many would be missing, while others would be worried by the bees to such an extent as to mar their beauty, as well as cripple their usefulness. Some would be minus a wing or a leg, and others would present that black and shiny appearance, the result of balling. After introducing thousands of queens by every known method, I know of no safe method of introducing a virgin queen to a colony when eggs and larvae are present. Therefore, it is a universal rule with us, never to run in a virgin of any age or condition until three days after the removal of a laying queen.

The plan we finally adopted for the direct introduction of virgin queens is the same as recommended by the late Henry Alley, omitting the tobacco smoke, as well as other minor details that we did not find necessary. First, make sure that the colony has been queenless three days, then open the hive and blow a puff or two of smoke gently over the top bars, and perhaps a little down between them, not enough, however, to stampede the bees. Shake the queen out of the cage, and on to the frames, and quickly close the hive. This method is simple and rapid in operation, and resulted in a lower percentage of loss than any that we have yet tried. Young queens that are run in at the entrance are quite likely to wander out again and get lost unless the entrance is plugged up. As we are opposed to closing the entrance of a hive, we prefer to run them in at the top. They will help themselves to the first honey they come to, after which they will not wander away, especially if of the proper age.

Birmingham, O.

KILLING A BEAR IN A BEE-YARD

BY ELMER HUTCHINSON

When we moved to Northern Michigan, about eight years ago, we were unable to find a vacant house to live in near any of the bee-yards we had located, so we moved into some old lumber shanties near Pioneer. With the exception of a small clearing at one side, they were entirely surrounded by woods. A small spring brook ran near them; there were hundreds of acres of rank, luxuriant, wild red raspberries growing around them, and scattered along the brook were many small swamps, filled with goldenrod and other fall flowers. Scattered through the brush and woods, were thousands upon thousands of pine-cherries, which, when the weather is good, are great spring honey-yielders, helping out wonderfully with the stores, and building up the colonies in great shape for the raspberry honey-flow. It was an ideal location for bees, and we kept a large number of colonies there, and made the place our headquarters for three or four years.

Then we bought a place two miles from there out in the settlement, and moved there taking part of the bees with us, but leaving about 100 colonies back in the woods. Now it seems that this place was also a good place for bears as well as bees. While living there we had occasionally seen signs of them, but they had never come very near the shanties. That fall an old bear and two cubs got in there and did about $200 damage, and we moved the bees away.

A year or so afterward, not liking to abandon so good a location, I moved some bees back there, built a fence of woven wire four feet high, with a strand of barb wire a foot above it, around them, and they were not molested that year (simply because no bears happened about, I suppose).

One day last fall, some time in September, I think, my two sons, Charles and John, went over there to introduce some queens. Charles had about 80 colonies there, while I had 25. About 10·00 A. M. they were back home. Coming out to the shop where I was, Charles said that they had a partner helping them with the bees down west. I asked him if he had any idea who it was. "Bears," said he. Well, I thought, we had better go down and have a settlement with him, and dissolve partnership.

We got out our high-power 30-40 rifles and practiced shooting at a target, then after dinner we took Ned and the buggy and drove down. I wish the readers of GLEANINGS could have been there with us, and viewed the scene of devastation, the almost utter ruin of what had been a very fine yard of bees—hives, covers, bottom-boards, and combs, scattered all over the yard, combs partially off and broken, all over the yard, and even carried off in the brush, outside the fence. Things looked worse, and there was much more damage done, than there was at one of our yards after a cyclone had passed over it. As Charles said, "It makes a fellow feel kind o' sick when he first sees it, especially if he owns the bees." We found about two bushels of bees clustered on some bushes near by, and Charles found another good-sized swarm hanging on a bush off out in the brush. We hived the bees, straightened things up a bit, then held a council of war.

We had to build a platform high enough to give a good view all over the yard, also for a short distance back of the yard where the bears came in, on which we could sit and watch for the bears. At one corner of the yard there was a tall maple tree, about 30 feet up to the first limbs. The way the bark was scratched off, the bears must have used this tree for a lookout station.

The two boys wanted to build a platform up in the branches of this tree, but with my rheumatic knee I knew that it would be impossible for me to get up there, so I vetoed that. There was an old shanty near the bee-yard, on the side opposite from the one which the bears used when entering the yard, the roof of which was sloping toward the bees. I proposed that we cut a long hole through the highest part of the roof, then build a platform underneath the hole down in the shanty; by sitting down on this platform all the bears could see of us would be our heads and shoulders, and if we sat very still they would not be likely to notice us. This we proceeded to do, finishing about 5 P. M. in the afternoon.

After eating our lunch, John and I went down to the brook for a drink. While on our way back I saw Charles standing with his rifle to his shoulder aiming out over the bee-yard. We stopped and waited a moment, then he lowered his gun and motioned for us to come on. He said he had started for a drink, when, looking out over the bee-yard, he saw a bear walk out of the brush coming toward the bee-yard. He stood motionless until the bear passed behind a clump of brush, then he sprang for his rifle. When he next saw the bear it was going out of sight, back in the brush. Well, you can just guess I felt pretty sick to think what a fine chance we had lost by not being up on our platform; we might never have another opportunity like that to get a shot by daylight.

We climbed up on our platform, and sat there, ruminating on our lost opportunity. Not daring to move to brush them away, the sand-flies gathered for a free banquet. Any one who has never sat perfectly still for an hour and allowed the sand-flies of Northern Michigan to roam at will over his person, and to bite when and where they will, has an experience before him that will not be wholly one of pleasure. We had agreed that, if a bear did come, not to shoot it at once, but let it climb the fence and upset a hive or two, just to see it work. We had sat there about an hour, feeding the sand-flies, our eyes glued on the brush back of the bee-yard, seeing nothing but brush, when—we were looking at a bear, black as a crow, hurrying along as though it was afraid it would be late for supper. It came out of the brush back of the bee-yard, and started to go around one corner of the yard. John, thinking it was about to go back in the brush, raised his gun. The bear, seeing the movement, stood up to get a better look at us. Out from the corner of my eye I could see that John was already aiming his gun at it. I saw that, if I got a shot, I must be quick about it. The rifle I had was fitted with globe or peep sights with which a very quick and accurate aim may be secured. The bear was standing a little at one side from where I was sitting; swinging my gun around, the second I had it pointed at the bear I had a bead on its neck, and pulled the trigger about the same time that John fired, our two reports blending as one. Although I had rheumatism in one knee so bad I could hardly walk, I got down off my perch and out where the bear lay about as quick as either one of the boys did. Each shot struck it in the neck and either one would have been fatal.

It was a good-sized yearling, and very fat. We debated a bit as to whether this was the bear that Charles had seen earlier, or whether there were two of them. We finally came to the conclusion that, even if there was another one, after having seen us, and heard us shoot, it would not come back that night. Anyhow, we were quite anxious to get home and show our game, and may be brag about it a little, for it is considered something of an achievement to shoot and kill a bear, even in this new wild country.

Going back the next morning, we found another bear had been in the yard during the night, and upset three or four more colonies. We kept watch nights after this, until we had the bees moved home; but the one that was left had got aware that some one was around there, and kept out of our sight. All together our loss from this raid was more than $300. Between bears, forest fires, and one cyclone that passed over one of our yards, we have had some strenuous times here in Northern Michigan; but in the vernacular of the wild West, we are "still in the ring" and still fighting.

Lake City, Mich.

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A FURTHER REPORT REGARDING THE SMOKE METHOD OF INTRODUCING

BY MORLEY PETTIT

Some time ago we received three queens, with directions for introducing by the smoke method instead of the cage plan. Reports from this plan are coming in at the present time, and they are very similar to what have been reported in GLEANINGS. I consider that the careful beekeeper who has had experience in experimenting will be successful from the start with this method. It has also been found successful by some beginners, but quite a number have reported lack of success. The same, of course, can be said of the cage-introducing plan. One young man who tried the latter plan for the first this year lost one out of three—that is, he lost every third queen out of several dozen which he introduced by the cage plan. His success with the smoke method was in the same proportion. Another young man introducing queens for the first time this year, has been almost uniformly successful with the smoke method.

In our own apiaries, which are being managed by my sister, Miss Pettit, the smoke method is used exclusively. The other day when we were ordering four dozen queens for requeening during September and October, I said, " Will you introduce these by the cage or the smoke method?" Very positively she replied, " The smoke method." and then she told me about one queen which arrived almost dead, and which was viciously attacked through the screen of the cage when put in to be introduced by the cage plan. She closed up the colony and smoked it according to the smoke method described by Arthur C. Miller, turned the queen in, and next day when she looked in the queen was bright and strong, laying in the usual way.

Mr. Davis, of Tennessee, told me at the St. Louis convention that he and his father used the smoke method some years ago, and discarded it in favor of the starvation plan. They starve the queen for thirty minutes, then open the hive and let her loose on a comb. They find this more generally successful even than the smoke method.

Guelph, Can.

[In considering the smoke method of introducing queens, or any other method, for that matter, we must all bear in mind the fact that the percentage of failures reported might have been as great or even greater if some other plan had been used. The smoke method seems to be holding its own. There are some failures, as must be expected. Some bees seem to be just naturally stubborn.

In this connection, at one of our swamp yards we recently introduced 24 laying queens which had been sent out from a queen-rearing yard some 15 miles away. Ordinary 2¼x3½-inch mailing-cages were used for introducing-cages. On visiting the yard a week later we found all of the 24 accepted and laying. Our Mr. Geo. H. Rea believes that mailing-cages are more successful for introducing than the regular Miller introducing-cages—perhaps because there is usually a larger amount of candy that must be eaten out. Of course, in case of queens sent through the mails it is a wise precaution to use another cage rather than the one from the breeder, on the principle of erring on the safe side as far as disease is concerned.—ED.]

Heads of Grain from Different Fields

THE BACKLOT BUZZER.

Speakin' of robbers, if the amateur picture man, who spilled the honey this morning when he was takin' a kodak view of the bees, was here now, he'd have to use a movin'-picture machine.

Failure in Rearing Queens in Upper Stories.

In "Fifty Years Among the Bees," page 237, you describe a method of queen-rearing by isolating a comb of brood several stories above the hive. This appears to me a very simple and practical method of increasing a small apiary, such as mine, to which, on account of other employment, I am unable to devote much of my time.

I am a little in doubt as to how to proceed after the young queen in the top story has started to lay. How long should she be allowed to remain with the parent colony before giving the hive body in which she and her brood are located a new stand? and, after removal to the new stand, will your plan of blocking the entrance with leaves for a number of hours, etc., succeed in keeping the bees from going back to the old stand?

Dr. Miller says:

I am sorry to throw any cold water upon your project, but the truth is that I have not been able to succeed when I have designedly undertaken to rear queens in upper stories. Last summer I tried ten cases, and each one was a failure. But in two other cases—I'm not sure whether it was two or three—in which there was no design to rear a queen, but where, for some reason, there was brood above, I was surprised to find a queen laying and the old queen below all right. So it looks as if the thing can be done, only I haven't the right combination. That leaves it hopeful that you may succeed. I may further say that I also failed in previous years in the very few cases I tried, but at least in one case the bees succeeded of their own accord. In fact, I think that was the first case ever reported in which a queen was thus reared in an upper story.

The young queen may be removed just as soon as she begins to lay, but of course success will be better if she is left till there is brood in 3 or 4 combs. Stuffing the entrance with grass or leaves will work all right, but it isn't necessary if there are as many as 3 or 4 frames with brood. I have found that, the larger the body of bees removed, the less likelihood there is of a stampede. Besides, the bees in the upper story are all young bees, and so they are not inclined to return to their old home as are field bees. Last year I merely set on a new stand the story with all its contents, and it made a good colony all right. C. C. MILLER.

Wintering in "Clamps" Not Generally Satisfactory; Making Exhibits at Fairs.

I am taking the liberty of asking you a few questions in regard to wintering bees in clamps. How does it compare with cellar wintering? I should like some information on the best method of putting them in—that is, width and depth of pit, number of colonies to put in one pit, time to put them in and take them out, and any thing else pertaining to that method of wintering. The soil is loose sand near the south end of Lake Michigan. I have moved all my bees to the marshes for the fall flow. I see by Aug. 15th GLEANINGS you are doing the same stunt.

The management of our county fair have asked me to make an exhibit of bees and honey. If I do so I will have my exhibit in a tent and my demonstrating-cage near by in the open air. As the premiums are small I shall have to make my compensation by selling honey on the grounds. Any pointers or suggestions you could give me would be thankfully received.

Valparaiso, Ind., Aug. 24. JOHN C. BULL.

[Wintering bees in clamps—that is, if you mean underground, or buried, as described in Mr. Hutchinson's book—has not been very satisfactory outside of northern Michigan. In order to make this method of wintering work well it requires a knoll in sandy soil so there will be proper drainage of water. It will not work in a clay soil that is damp and heavy. For particulars on how to construct, see Hutchinson's book, "Advanced Bee Culture." You would get very much better results in an ordinary cellar; but you must make sure to have plenty of ventilation. It is now considered necessary to have air come freely into the cellar, but never enough to bring the temperature down below 45 degrees Fahrenheit.

The only information we could give you on the subject of bees at fairs would be the article in our A B C and X Y Z of Bee Culture, entitled "Honey Exhibits." In the old editions the article is under the head of "Fairs."

In the way of "pointers" we may briefly suggest the importance of having a good display of comb and extracted honey put up in an attractive form in glass bottles of various sizes; comb honey in individual sections, in shipping-cases; and the larger the exhibit, the better impression it will make. It is also important to have hives, bee-supplies, a colony of bees on the ground, and every now and then give a live-bee demonstration. This work should be done in a wire-cloth cage so that the crowd on the outside can easily see what is being done.—ED.]

The Cost of Producing a Section of Honey

Will Dr. C. C. Miller please tell what is the average cost of a section of comb honey, 4¼x4¼x1⅞? The cost of a single section in the flat is one cent. I set it up and put in a three-inch starter. I then put the section in a super and put the same on the hive. I take it off when filled; scrape and clean it, then weigh it, mark the weight of it on a label, and stick the label on the section; then put the section in a carton costing me 60 cts. per 100. Then stick on my label, which cost 60 cts. per 1000, and deliver said section to the consumer.

I want to know the average cost for the production of said section of comb honey. I surrender already. How do we know how much we gain if we don't know the average cost of a section of honey?

Silver Lake, N. H., July 24. Frank A. Gray.

Dr. Miller replies:

Your question, as you rightly think, is a difficult one to answer. I would promptly answer, "I don't know," and pass it along. But an attempt at an answer may be a little helpful, even if it does nothing more than to start some one else to give a better answer. You are quite right in thinking the problem an important one to solve. More, perhaps, than at any previous time the question is being raised in the minds of many whether to work for sections or extracted honey. The new law requiring the weighing of each section will set many a section-honey producer to thinking whether he will not do well to change to extracted honey; and in order to settle the question he should know at least a little about the cost to himself of the two kinds of honey.

As you state the problem, the different factors are hardly all just what they should be to fit the case of beekeepers in general; and the probability is that, as you continue in the business, you will change those factors. You estimate sections at $10 per thousand—a price which few beekeepers pay. You put in a three-inch starter. I'm pretty sure you are losing money by not putting in a third more foundation in each section. You have two labels for each section. That's expensive. A set of rubber stamps could well take the place of labels.

Taking, however, the factors just as you give them, it is difficult for any one else to estimate the cost to you, since you do not give the time occupied in the work you put on each section. There is a wide difference in this regard; as, for instance, some beekeepers will take five times as long as others to clean a super of sections. Another difficulty is that one does not know how much to charge up for your time, whether it be worth $1.50 a day or much more.

On the whole, why can you not, better than anyone else, figure up the cost of a section? Time yourself; charge up what your time is worth for all the items, and your work at the hives, and add to it what you pay out for material, and there you are.

In my own case, about as far as I have got is to figure that whatever I got more than 3 1-3 cents a section could be counted as pay for my skill and labor. I've never felt that I was overpaid. But the fun of it is something.

Marengo, Ill. C. C. Miller.

[We presume that Mr. Gray wants to know, also, something concerning the cost of production of the honey itself. Taking into consideration the fact that the bees get the nectar for nothing, it is necessary to figure only the interest on the investment of bees, hives, and other fixtures, and the cost of the time of the apiarist with the bees during the season. These items should then be added to the cost of the section, foundation, and of the time in preparation.—Ed.]

Smoke Method Successful

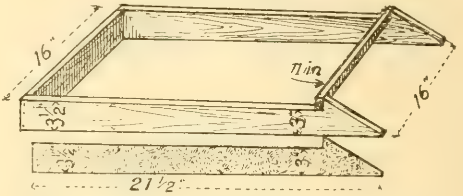
In the fall of this year I tried Arthur C. Miller's smoke method of introducing queens. One colony was made queenless the day before running the queen in, and the other four had been queenless about four weeks, as I had given queen-cells before going on a holiday, and the queens had failed to hatch or became lost after having hatched. All the colonies were strong ones and two of them had laying workers with the combs literally packed with eggs and larvae. As it was becoming cold, I thought I would unite them with other colonies, but a neighboring beekeeper had some young queens on hand, so I purchased five and introduced them as Mr. Miller instructed in Gleanings. To one of the hives with laying workers I gave a comb of eggs and larvae from another colony, with adhering bees. The other I left just as it was, as I wanted to give the method a fair trial in adverse conditions. Some of the colonies had been queenless for quite a while, and some had laying workers. Moreover, there was no honey coming in, as it was very late in the fall.

I still have the five colonies each with a good queen, except one which seemed to be paralyzed in one leg, as if she had been stung there. This queen was in the hive that had been queenless so long, but that had no laying workers.

I think this way of introducing is going to turn out a great success, and it is so very simple and easy if instructions are carried out.

William Barnes.

Garrah Willah, N. S. W, June 26.



Form for making a concrete hive foundation, submitted by Ellsworth H. Smith, Portageville, N. Y.

THE SECRET OF THE SONG OF THE BEE

BY GRACE ALLEN

Little bee, I'm listening, listening, listening,
All my soul is reaching for the secret of your song.
My heart is like a muffled thing
With mute on every vibrant string,
While all my thoughts are listening beside your silver song.

Let me hear the whole of it, the soul of it, the heart of it;
Let me feel the fire of it, the ancient hidden flame.
Tell me, are the vivid flowers
That call to you across the hours,
Are these a pulsing part of it, the first, perhaps, that came?

Or is your song a song of life, of eagerness that's maddening,
Of tense and tireless ardor that goes chanting to the strife,
With ecstasy and rapture?
Did your love of living capture
A song, while you went gladdening and plunging into life?

Oh! there's something stirring in it, and there's something steady in it,
And there's something strangely quieting and something sweet and strong,
And something glad and glistening!
For all my wistful listening
I dare not hope to win it—all the secret of your song.

A. I. Root

OUR HOMES

Editor

Heaven and earth shall pass away, but my words shall not pass away.—MATT. 24:35.

Before they call I will answer; and while they are yet speaking, I will hear.—ISA. 65:24.

Whoso liveth and believeth in me shall never die. —JOHN 11:26.

I have again and again mentioned the kind words that come to me in regard to this department of our journal. In fact, we have printed quite a number of these kind words. They keep coming continually. Every mail brings more or less of them. In fact, many of the friends, as you will remember, who are not beekeepers take this journal year after year for this department alone. Now, while these kind words have been coming by the hundreds, and I might say by the thousands, there are some criticisms and fault-findings. Years ago, when Our Homes department was first started, there were quite a good many who objected to my faith in the Bible and to my belief that God hears and answers the prayers of his people. I am led to think that skepticism and infidelity, however, are passing away, and that the Bible is held in greater reverence just now than ever before since the world began. Our periodicals, especially our industrial journals that are making progress, all favor the Bible and Christianity. In fact, if I am correct, humanity now, almost with one accord, agree that the Bible and its teachings are the real forerunners of all real progress in the arts and sciences and in caring for these bodies of ours. Wherever missionaries make a start, not only churches but schools spring up. If the language is unknown the Bible or portions of it are soon translated. Then comes in the printing-press and civilization. Skepticism and unbelief never emancipate the heathen from their darkness. I think I am pretty well informed in regard to these matters, because we exchange with periodicals printed in many languages and in all parts of the world, and I get more or less of a glimpse of what is going on in the world, especially in the way of progress.

Just now I recall three persons who are objecting to the Bible and to its teachings, and to my belief that God answers prayer. These three keep writing to me every little while. One of them, a man older than I am, who, I think, has been a skeptic all his life, jokingly writes me that, instead of my converting him over to my faith, he hoped to convert me eventually over to his faith; but, if I remember correctly, *his* faith is no faith at all. He does not accept the Bible as the word of God; in fact, he questions whether there is any God *anywhere* to direct the affairs of this vast universe. I have not always replied to these three friends. Sometimes I think it useless to reply; and then, again, I sometimes fear that arguing the matter only makes things worse. I do not believe in long arguments such as Christians used to have years ago in regard to doctrinal points. Now, I hope the little illustration I am going to give you will not hurt anybody, even these three friends I have spoken of. This is the story:

When I first began to succeed with the Italian bees it made quite a stir in this community. One poor man came into my store one day (I think he lived off in the woods somewhere) and said he wanted to talk with me a little.

"All right," I said.

Then he began something as follows:

"Mr. Root, I am told you claim that every hive of bees and every swarm of bees has a king or a queen."

I assented. Then he went on:

"Well, if you will just give me a little time and listen to me, I think I can convince you that you are mistaken."

I asked the man if he kept bees, and he said he had kept them all his life. I asked him if he had movable-comb hives, which were then a comparatively new thing. He said he had no use for any such "contraptions," or something to that effect. Now, under the circumstances what use would there have been in holding an argument? I did not make any reply. I reached for my cap and asked him to follow me. He tried to talk and go on with his argument on the way; but I made little or no reply. When we arrived at the apiary I opened a hive, took out a comb, showed him the yellow bees, found their Italian queen, let him see her lay, and his astonishment was so great that he forgot all about his desire to argue. In fact, how *could* there be any argument when he was compelled to admit that I had shown him more about bees in a *few minutes* than he had ever even dreamed of in his whole lifetime?

Now, I hope the three good friends whom I have mentioned will not feel hurt, when their eyes rest on this, if I suggest that the opponents of Christianity, especially those who declare Christians are all deluded hypocrites, are about on a par with the poor man who made a trip of several miles in order to teach *me* bee culture. As an illustration I am going to give you a few sentences from a letter I received recently.

> I have read what you said about working to destroy the squash-bugs and protecting the vines on Sunday. It seems that at some times you attach far more importance to God's commands than you do at others, and that you seem privileged to do what you would deem a sin if done by another.

My good friend, are you not in error? The commandment reads, "Remember the sabbath day to keep it holy;" and in other places it is explained we shall drop our week-day avocations, or, as I understand it, we should desist from all *unnecessary* work. A farmer must feed his stock on Sunday and take care of his milk if he is a milkman—that is, he must take care of it in some way so it will not go to waste, and so the babies and children who are dependent on it will not suffer in health. The Savior, you may remember, suggested that if a domestic animal fall into a pit we should pull it out, even if it *was* on Sunday. I believe all Christians agree that it is proper to work in order to avert the destruction of property—that is, where a little work would save a large amount of property, a good Christian should always be ready to take off his coat and go to work. I remember one Sunday when there was a big windstorm when the people were in church. On the way home one of our good deacons found a large tree across the road so he could not well get home until the tree was removed. A crosscut saw and some axes were procured, and off went their coats. Did anybody think *less* of their Christianity?

Now, it is not always easy to decide what work should be done and what should not, so as to be consistent with God's command; but I believe the laws of our land and the laws of God will let each faithful follower of the Master decide this largely for himself. If he makes an honest and sincere decision, even if he *is* wrong, I am sure the loving Savior will never lay it up against him. Let me illustrate:

I have told you about starting a Sunday-school up in northern Michigan where there was none. I started out early Sunday morning and worked hard, inviting and pleading with the men, women, and children. It was in the spring of the year, and a beautiful sap day. My good neighbor Hilbert had a big sugar-bush, and all of his children and some of his neighbors' children were busy as bees gathering sap, and he did not see how they could be spared to go down to the Sunday-school where I had permission to use the church, nearly a mile away. I told him that, if he *would* give permission, we would go around to all the sap-trees and dip enough out from the pails so none of them would run over if he would let me take all the hands down to the Sunday-school. His young daughter, Alice (bless her memory!) was full of enthusiasm about the Sunday-school, and she flew around like a butterfly among the big trees and ladled out the sap while I carried it to the smaller trees that were not running very much. As a result by 3 o'clock P. M. we had a rousing Sunday-school to start out with, and that Sunday-school is going yet—the school that was started, as I have told you, more than a dozen years ago; and there is a nice little church there, too, composed mostly, I think, of the Sunday-school scholars, who will, many of them, *remember* that bright spring day. Now to get back to the squash-bugs:

All gardeners know by sad experience what damage such bugs may do in just a few hours or even minutes; and I think about half an hour's work effectually broke up and scattered the gang that was determined to eat up my vines that warm Sunday evening; and just now I am enjoying the fruit of that half-hour's work in the shape of the most luscious cantaloups I ever tasted. The seed was sent me by a good beekeeper to whom I had sent some dasheen tubers. Don't you think, friends, the writer of the above who pitches into me about working on Sunday was somewhat like the man who was going to convince me by argument that there is no king nor queen at all in a hive? Now he takes me to task once more as follows:

> In your account of the drowning boy's rescue by Wesley you state that your prayer that Wesley's next step would find higher footing was answered. Will you kindly explain in just what way God answered? Did he make the water shallower than it had been before your prayer? And if so, has it remained shallower ever since?

Well, friends, some of you may think at first glance that the above is a "stumper" if you will excuse a slang word. I think there *is* a rocky bottom to that swimming-pool. In answer to my little prayer, "Lord, help!" did the great Father of the universe raise or lower that rock? In the first place, I did not think of dictating to the great Father as to *how* he would lend me help to avoid having on my hands and shoulders a drowned *man* as well as a drowned boy. In fact, if Wesley had gotten into trouble because he could not swim, I was ready to go in after him, realizing that I was risking my own life in so doing, because he, a strong man, in his drowning struggles, might easily pull me under with himself. There was a *terrible* necessity for help from somewhere, for the frightened boy who stood near by did not volunteer any sort of help. Under the circumstances, did my prayer in reality have any thing to do with the depth of the water when Wesley took one more step ahead, with the surface of the water up to his chin? I confess, my good friend who propounds this question *would* have me in a tight place were it not for God's promise given in one of my texts —"Before they will call, I will answer." It requires some strength of faith, I admit, to expect that God in his infinite power and wisdom foresaw this event, *perhaps* at the creation of the world;* therefore the rock that gave Wesley a higher footing is right there where it has been for ages past. At the time I gave up my bee-smoker rather than get into an expensive lawsuit, another smoker came from friend Corey, away off in California, and was placed on my desk, in answer to my prayer. At the time I mentioned it, a friend reminded me that the smoker was started by mail *before* my little prayer, "Lord, help!" was uttered. When I presented the matter to my good pastor, the Rev. A. T. Reed, he smilingly turned to the promise I have mentioned, that God would so order events as to get his children and followers out of trouble, even *before* the trouble came.

Since this terrible war started, one of the three friends has asked me the question whether God planned for such a terrible and cruel war; and then he added something like this:

"Yes, I know what you will answer. You will say God *permits* Satan and evil men to go to certain lengths," etc. Now, friends, I honestly admit the above is indeed a perplexing question. It is a question that is perplexing the whole world just now, and it might be wisdom for us all, while we are doing every thing we can for peace, to wait a little and let future events answer the question by their unanswerable logic. We have already been reminded that some terrible wars in the past have brought about peace and good will in a way that perhaps could not have well been accomplished without the war; or, perhaps, we might add, when humanity was in its infancy, there might not have been any *other* way to bring about progress in the world. The Revolutionary War of 1776 gave birth to our American republic. The late civil war in this country in 1861 put an end to the black-slave traffic, not only here in America, but pretty nearly in the whole wide world. The war with Spain rescued Cuba from her heathenism. You may recall that I spent one winter in Cuba, and gave a pretty full account of what our own nation accomplished in that direction. A skillful surgeon cuts and mutilates a human body in a way that seems terrible to an onlooker, but the patient is oftentimes (if not always) delivered, not only from suffering, but from speedy death. Perhaps it is true that in this crisis we hardly know what to pray for; but God's loving children can always come to him with that little prayer, "Lord, help!" and with the assurance that the prayer will be heard and answered in *some* way in his own good time. If those who reject the Bible would look about them and see what it has done to benefit mankind in every *conceivable* way, I think they would be ready, like the poor friend who was going to teach me bee culture, to accept what they can see with their own eyes and understand. I admit there is much in the Bible I do not understand; in fact, it is beyond my feeble and circumscribed intellect. But, thanks be to God, much of it is getting to be plainer every day of my life as I grow older; and there is so much good, a sort of good that comes from nothing else in the way of literature, that I am astonished almost every day because so few seem to have got hold of it and are ready to say, "Love ye your enemies; do good to them that hate you." Where do you find any other book that takes such ground as that unless they *copy* it from the Bible? And this plea for "peace and good will" runs all through it from Genesis to Revelation. It is true, it gives a history of sad events and of what bad men have done and *said;* but these bright texts flash out and sparkle, here and there, from the beginning to the end of the book.

Let me repeat once more a little incident.

Shortly after my conversion a neighbor, who was an intemperate man, drove his wife and family out into the cold one winter night. I could not talk with him in that condition; but I made up my mind I would plead with him at the first opportunity when I found him sober. One stormy day I found him in a little shoe-shop with a few of his old cronies. I tried to talk with him; but the whole crowd turned on to me and my religion; and they said such awful things about Christians, preachers, and all, that I was literally "snowed under." I realized I had made a blunder; and while I used that little prayer, "Lord, help!" I pushed my foot in among the scraps of leather that lay scattered thick in that disorderly shop. All at once my eye caught sight of a little scrap of paper. I think it was *while* I was praying for help from above. Mechanically I picked up that little bit of paper and read it. After reading it myself, I asked permission of the crowd to read it aloud. They had seen me pick up the paper from the leather scraps, and here is what I read:

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* I shall have to confess that I am constantly tempted with, I think, the rest of humanity, by trying to measure God by our own feeble comprehension. We forget, or we can not believe, or perhaps I should say *keep in mind,* that we get in our brief span of life only a *glimpse* of nature and of nature's God. We can not realize that he is omnipotent and omnipresent, although he strives to teach us over and over again in his holy word. To assist our faith he says, "But the very hairs of your head are all numbered." Now, that does not apply to any *one* individual. It must mean all humanity, or at least all humanity who regard him as their heavenly Father. He is past and future all at once, and all in one. We can hardly get even a faint glimpse of the resources at *his* command to grant that little prayer, "Lord, help!" no matter by whom it is uttered. In the 55th chapter of Isaiah we read: "My thoughts are not your thoughts, neither are your ways my ways, saith the Lord."

> But I say unto you which hear, Love your enemies, do good to them which hate you, bless them which curse you, and pray for them which despitefully use you. And unto him that smiteth thee on the one cheek offer also the other; and him that taketh away thy cloak forbid not to take thy coat also. Give to every man that asketh of thee; and of him that taketh away thy goods, ask them not again. And as ye would that men should do to you, do ye also to them likewise. For if ye love them which love you, what thank have ye? for sinners also love those which love them. And if ye do good to them which do good to you, what thank have ye? for sinners also do even the same. And if ye lend to them of whom ye hope to receive, what thank have ye? for sinners also lend to sinners, to receive as much again. But love ye your enemies, and do good and lend, hoping for nothing again; and your reward shall be great, and ye shall be the children of the Highest; for he is kind to the unthankful and to the evil. Be ye therefore merciful, as your Father also is merciful.—LUKE 6:27-36.

The shoemaker jumped up in alarm and said something like this:

"My God! how did that piece of paper ever get down among those scraps of leather in my shop?"

The profanity and vulgarity of the crowd was at an end, and my exhortations for better lives were respectfully listened to. Then I asked them all to kneel down while I closed with prayer. It was, I think, the first time I ever knelt and prayed in a public place like that; and no doubt it was a broken and boyish prayer; but it *did the work.* The man who abused his family gave me his promise to do better. He did not promise to stop drinking entirely, but from that time forward not only he and I, but the family, were fast friends. His boys were regularly in my Sunday-school class.

Now, there is more yet to the above. When I opened the door to step out (feeling a joy in my heart that can not well be expressed), the druggist came out of another door, for the drugstore adjoined the shoe-shop, and there was only a thin wooden partition between the two. There was a little crowd in the drugstore as well as in the shoe-shop, for it was a stormy day. The druggist said, "Mr. Root, will you please tell me where in the Bible you found that passage you read to the men in the shoe-shop? The partition is so thin we heard all that was going on, and were laughing at your discomfiture; but *I* want to say, that what you read from that little bit of paper would *save the world,* even if all the rest of the Bible were lost and gone forever."

The above hearty indorsement was from a man who was not at the time a professing Christian. Dare any of you undertake to say there was no answer to prayer in this transaction? When I was overwhelmed by their sneers and sarcasm the little bit of paper came to my rescue. Did that just *happen* to be in that little shoe-shop among the scraps of leather, or did God so plan it that when in trouble and distress that little torn scrap of the Bible should help me out? and did he so plan that I should have *two* audiences instead of one, when I made that plaintive prayer for my intemperate friend and the others who were ridiculing his holy word?

THE DEFEAT OF INJUSTICE.

Whosoever will be great among you, let him be your minister; and whosoever will be chief among you, let him be your servant.—MATT. 20:26-27.

In our issue for August 15 I mentioned telling my good mother that the little text about loving our enemies and doing good to them that hate us was to the great wide world an *unexplored region.* Since then the terrible European war has broken out, and I am ever so much *more* impressed with the sentiment I voiced at this time about rendering good for evil, as it is literally true—yes, clear up to this *twentieth century* an "unexplored region." In that same issue I gave a clipping from the *Sunday School Times;* and I told our readers that if there was a call for it I would have it printed in large type so that elderly people and everybody else could read it easily. Here it is:

THE DEFEAT OF INJUSTICE.

No one can ever afford to think about any injustice he receives. It is disaster and destruction to do so. It is like deliberately lifting a glass of poison to our lips and swallowing it. Injustice inflicted upon us never harms us until we dwell on it. While we ignore it, and do right, it is powerless against us. When we begin to turn it over in our mind, it starts its murderous * work upon us. It soon exaggerates itself, blinds us, rankles, inflames, embitters. It breeds self-pity, which soon reduces us to a condition of worse than helpless uselessness. Jesus paid no attention to the awful injustices of his lot. We can not afford to do other than he did, but with our lesser injustices. If love is our master-passion, '' thinking no evil '' and '' bearing all things, '' we shall live emancipated from the misery of dressing our own wounds. Such wounds heal quickly when we are lovingly busied with the needs of others.

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* *Murder* is exactly the right word. Right here (with the help of strong drink), is where insanity, suicide, and murder get in. Look about you and see if I am not right.

There you have it, friends. I confess that at first glance some would think the *Sunday School Times* had almost *overdone* the matter; but I tell you they are right about it. For almost forty years I have been testing the matter of returning good for evil, of forgetting an injury or an insult or an affront, just as soon as possible. Get your mind on something else. I know it is hard sometimes; but just hold fast to the little prayer I have given you—" Lord, help!" Get busy; and before you know or realize it you will have forgotten it entirely, and be happy and joyous.

Our friends will recall that at various times I have spoken about meeting happy surprises. Well, the follower of Christ Jesus—one who is really in accordance with the clipping above—will in due time meet with happy surprises, for he is right along in the line of that joyous and happy throng who said to the Master, " Lord, when saw we thee an hungered, and fed thee? or athirst, and gave thee drink? " etc. You see these people had been so busy in doing good, right and left, that they had been losing sight of self entirely, and they had forgotten all about their loving ministry to poor suffering humanity.

Somebody recently said of Gladstone that if we wanted to get a glimpse of him at his best, we should have to watch for an opportunity and show him some unkindness—that is, if you should happen to have a *chance* to do so, and just see how quickly he would put himself out of the way to do *you* a favor. I know it seems almost wicked to suggest such a thing; but he was a true type of that kind of humanity. " Bless them that curse you; pray for them that despitefully use you."

Now, these leaflets are printed to be sent out free of charge. They are to be sent broadcast out " on the waters;" and if *I* do not see any good result from them in this world, I shall have faith to believe I shall in the world to come. I hope they may be floating about and read after my work here in this world has ceased. Do not be backward in telling how many leaflets you can distribute among your friends, whether a dozen, fifty, or a hundred or a thousand. They will be sent gladly.

Your old friend,

A. I. Root.

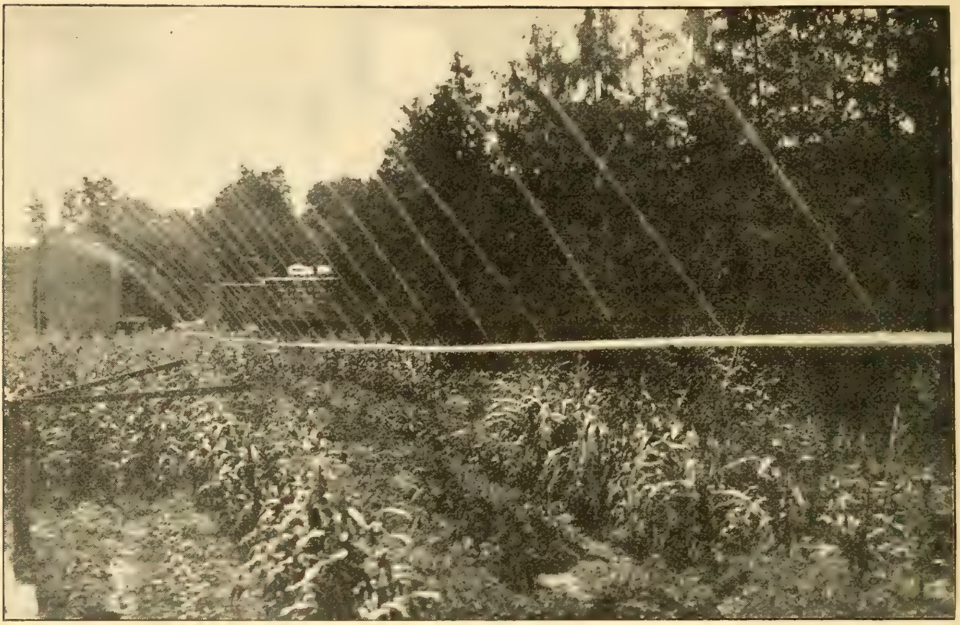
Sept. 15, 1914.

HIGH-PRESSURE GARDENING

SUMMER SHOWERS WHENEVER YOU SAY THE WORD.

Although I have been either gardening or in touch with gardening for almost 70 years, I have never before, until the present time, enjoyed the great privilege of having a veritable " summer shower " on my garden whenever it seemed needed. About the first of August I started what is called the Skinner system of irrigation, on our garden, which is 75 feet wide and 260 feet long. As it is very desirable to use the team when plowing, and a horse for cultivating, I did not want any posts or supports standing in the way of the team. Accordingly we stretched a ⅜ braided wire cable from the house on the north to a telegraph-pole on the south. In order to test the system more fully the sprinkling arrangement covers only the north side of the garden. On the west side is a row of evergreen-trees for a windbreak. On the east side is a little row of apple-trees. A galvanized-iron pipe one inch in diameter runs part way, and then a ¾-inch pipe, and both perforated every yard, and a brass nozzle screwed in. With a pressure of about 40 lbs. from our city waterworks these pipes throw a stream fully 30 feet on each side. The pipes are suspended just high enough to clear the horses' heads when they are cultivating. By rotating the pipes (which are suspended on roller bearings) the whole of the garden is sprinkled just as nicely as a summer shower would do it.

Now, to tell you just how much this accomplishes, let me explain that the ground was so wet in the spring that we were compelled to plow it when it was *not* in *good* condition. After plowing, a succession of cold heavy rains made it just like mud; and when dry weather came it was almost



Overcoming drouth by the Skinner system of sprinklers

impossible to break up the clods (that we have on our Medina clay soil), and get the ground into reasonable tilth; and since then, if we do not cultivate or hoe the garden at the right time after every shower, it is still a mere pile of clods. Along in July we got most of the lumps flattened and crushed so things began to grow once more on the "high-pressure" principle. Mrs. Root stands for Ohio; but when I commenced on the soil up here after working the friable Florida ground I became disgusted and almost felt as if I wanted to stay in Florida all the year round, even if it *is* true that here, with many things, we get fair crops at much less expense for fertilizer than we do in Florida. Those who have worked a clay soil like our own are well aware that, if they can get on to the ground with hoe and cultivator at just the right time after a shower, the soil stirs very easily. A great many times, however, it is difficult to do this work at the opportune moment. If you get to work too soon after a shower you are in the mud, and this will not do at all. If you wait too long, the clay soil bakes almost as hard as a brick. By the way, we do all our sprinkling just about sundown to avoid loss of water by excessive evaporation. I noticed the manufacturers of the sprinkler said that, if used properly, it entirely prevents clay soil from baking—that is, you can keep the ground loose and friable with very little work. This I find to be true. I can take my hoe before breakfast during this month of August and stir the soil around my pet plants just as easily and as nicely as I can down in the Florida sand; and it is just wonderful how the corn, beans, peas, potatoes, cauliflowers, dasheens, sesame, helianthus, and all these new things, respond to the water applied just right, and to the stirring of the soil around them to let in the air. Just an hour ago (it is now Aug. 20) I took a look at my row of Hubbard squashes. At the north end of the garden under the sprinklers they are bright and thrifty—no withered leaves. At the lower end of the row, where there are no sprinklers, the leaves hung down drooping, and the vines seem ready to die; and it was so with every thing else.

I am going to write to the manufacturers, telling them there is just one trouble with their invention—it makes the *weeds* grow just *fearfully;** but with such nice friable

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* I suppose I should mention one real drawback to this sprinkling system or any other form of irrigation in regions where heavy rains are frequent, sometimes at a season when we do not expect them. It is this: When you have your ground irrigated just right, and a heavy rain should follow immediately after, if the wet weather *continues*, your irrigated ground will be too wet, and your irrigation at such a time may do harm instead of good. A relative of mine had several acres of celery. At much expense he arranged for sub-irrigation. His new apparatus worked so well that he rather overdid the application of water; and, even though it was in the latter part of the summer, some heavy rains came on that lasted several days, and his artificial watering ruined a large part of his celery. It behooves us, therefore, to be a little careful, and apply just *enough* water and not be tempted to put on too much.

A "summer shower" at the word of command.

soil it is no work at all to keep the weeds down and out, so our dasheens are now, some of them, a yard tall, and we are already using it for stews. The little suckers that grow around the main plant are the nicest for what we call oyster soup; and if we bank them up, so as to have the soil *bleach* the shoots, they will be all the better. The sesame plants I have spoken about are now full of buds. We expect to have ripe seeds in a short time. The helianthus is now quite a little higher than my head, covered with yellow flowers. It looks exactly like an artichoke. I have to be careful about hoeing them, because the roots shoot under the soil for a distance of 18 inches or perhaps two feet. These are, I suppose, the ones that bear the tubers. We have to be careful about hoeing among the plants for fear of cutting these tuber-forming rootlets.

After the above was dictated Huber took some views of my artificially irrigated garden; but before I proceed to describe the pictures accompanying it, I want to digress a little.

Quite a little criticism has appeared in these pages in regard to the way in which The "Luther Burbank Co." does business, sending out circulars to thousands of people, urging them to become "honorary members" by paying a certain sum, etc.

Well, along in the early summer I learned that our druggist had a variety of seeds of the "Burbank creation." I accordingly looked them over and purchased four packets. The one I have tried to picture, the "Rainbow Corn," has been a delight to myself and friends all summer. Below is what I find printed on the packet:

BURBANK'S IMPROVED RAINBOW CORN
(EXTRA SELECT);
25 CENTS A PACKET.

Beautiful and exquisite in colorings as orchids—a flower in bloom from the time the young shoots appear until the heavy frosts of autumn; nothing like it for decorative effects, for garden, cutting, or corsage bouquet. Leaves variegated with brilliant crimson, yellow, white, green, rose, and bronze stripes.

I am very glad to say, the above description is not, in my mind, an exaggeration. I think it is altogether the most beautiful and startling *ornamental foliage plant* I have ever come across. It is something after the fashion of the old-time ribbon grass; but there is a much greater variety of colors, and the colors are ever so much brighter. Away up north, near the Soo Canal, there is a resort (Manitou Island) where wealthy men and women of fashion congregate every summer. I described my visit there in these pages some years ago. The most attractive thing on the island (although it *is* an *attractive* place) is the gorgeously arrayed women of wealth from almost all over the world. Their fantastic costumes, with not only brilliant but glittering colors, make quite a fairy show,

Burbank's "Rainbow" corn. Indian corn as an ornamental foliage plant.

Well, just as soon as this ornamental corn began to push out its tassels it reminded me vividly of the beautiful women so gorgeously arrayed, *almost* rivaling the "lilies of the field" as we read in the scriptures. I am glad of an opportunity to give Burbank full credit, if he did indeed create this beautiful plant, and I think it is quite reasonable to believe he might do so in a series of years by making selections. This summer I have been testing toward a dozen varieties of sweet corn; and in these tests I find quite a few stalks showing, faintly, striped leaves. If you go to the poultry shows you will see what poultrymen have done in working for pet feathers. Now, if we should work corn in the same way for *foliage* instead of grain, it is not at all strange that the result is astonishing.

In the two large pictures you get a glimpse of the Burbank corn right under the sprinkling-pipes; and in the smaller cut you get a glimpse of the variegated leaves; but, of course, the camera does not give the colors.*

Now a word about the three other packets of Burbank's stuff. The variegated-corn packet costs 25 cents for, I think, about 25 grains. Another packet, labeled "Burbank's Improved Early Bantam Corn," costs 10 cents for 15 grains of corn. I could not discover that there was a particle of difference between this Early Bantam and some that costs only 10 cents for half a pint. There was also a packet of "Improved Early Sweet Corn" at 10 cents for 25 grains. This, like the Bantam, is not different from or better than (so far as I could discover) common early sweet corn at 20 cents a pint. The last was Burbank's sweet sunberry (wonderberry) (a Burbank creation). The above is, of course, an improved variety, or at least it is so stated, of Child's wonderberry, of which so much has been said and written. Owing to the persistent ravages of the little black flea beetle I lost all my plants but one. That one is now in bloom, and it looks exactly like a plant growing wild down in Florida that bears berries in the greatest profusion. This improved berry, however, may be better in quality. I am going to try to carry a plant down to Florida if it does not mature fruit here.

Now a word about the pictures. In the left-hand lower corner of the picture is an improved Senator Dunlap strawberry sent me to test. You see it is putting out a pile of runners already. Next is ordinary sweet corn; then comes a row of dasheens, but they are hardly visibly in the picture. Then we come to a little patch of ornamental corn. Right above this, over toward the evergreens, is the helianthus that has been discussed quite a little. It now contains a profusion of beautiful yellow sunflowers on a smaller scale, and they produce little seeds that look like sunflowers also. See description of the *Helianthi* on page 318, April 15. I will report further when it is time to dig the tubers. A row of sesame-plants is close by the helianthus, but hardly visible.

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* I think this variegated corn will soon be offered for sale at a reasonable price, for I have seen it also growing in Akron, O. At this date, Sept. 12, the ears (some of them *four* on a single stalk) are tasseled out with brilliant crimson silk which looks like an ostrich plume. I cannot tell you how much seed I shall get; but if every ear that is set produces a fair amount, I may be able to include two or three grains with the dasheen tubers that are to be given to paid-up subscribers.

THE DASHEEN IN CANADA.

Just a line to renew old acquaintance. Wife and I spent the winter in Lakeland, Florida, returning April 1. Lakeland is a lovely spot, high and rolling, with lots of lakes; three inside the corporation. You will remember those small dasheen tubers I got from you. Well, I have some fine plants, the stalks at the ground as thick through as one's wrist or more, and lots of little plants coming up all around them. I might get a snapshot of them just to show you how they can be grown in Ontario. Now, what I want to ask is, how can I tell when they are fit to take up or use? Does the top show any signs?

Innerkip, Ont., Aug. 19. J. ALPAUGH.

My good friend, your dasheens are fit for use at any time; but in order to preserve the old plant I would just dig down and pull those young suckers. They are especially nice for a stew. Cook them as you would oysters or mushrooms; then put in some crackers, and we think you will find them a very appetizing and nourishing dish. Very likely they will not mature in Canada —that is to say, the tubers will not keep over winter; but just before frost comes, or after a light frost, dig them all up and use the tubers for baking as you would bake a potato. The stalks are good for a stew at any stage of growth. The tubers can also be stewed with the stalks cut up in pieces, say an inch long. You will soon learn how to use them after you get a taste of them, I think.

SEED POTATOES FOR PLANTING IN OCTOBER AND NOVEMBER DOWN IN FLORIDA AND OTHER SOUTHERN CLIMES.

Our friends will remember that almost every fall we have trouble in getting seed potatoes to plant in our Florida home. F. W. Gibbons & Co., of Boston, have for years made a business of keeping potatoes in cold storage, to be shipped south for fall planting. Just now we have a postal card from a good friend in their employ. As it may be of some benefit to our Southern readers, we submit it below:

Friend Root:—Just a line as the thought comes to me. The old crop of potatoes, as you know, closed out at extremely high prices—3 cts. per lb., so that there are none for Florida planting. Take your new crop. Lay the tubers on burlap or bagging in the kiln where you dry lumber by artificial heat, and keep them there two weeks. This will hasten germination; also expose them to heat under the greenhouse benches. E. E. HARRINGTON.

Boston, Sept. 19.

Last winter, when we were selling our Red Triumph potatoes, there were quite a few that were hardly large enough for market—say a little smaller than a hen's egg. These we spread out on a cement floor in our wood-shed. This floor was partly underground and moderately dark. I think we must have spread out a barrel of them, and they seem to have kept all right. When they were beginning to sprout Wesley planted some in September, and will plant more of them this month. If we can keep over our potatoes for seed in this way it is going to be quite an item. I have before mentioned quite a number of our Florida neighbors who kept potatoes (spread out on barn floor) over, say, from March or April until October and November. Of course the potatoes shriveled up, and the sprouts are short and stubby; but I believe it is generally agreed that this sort of seed is the very best. If they are put out in the sun or in a good strong light just before planting the sunlight kills the scab almost if not quite as effectually as the formalin and corrosive-sublimate solutions. I will report further how these kept-over potatoes turn out.

SQUASH-BUGS, ETC.

Mr. Root:—I have just finished reading GLEANINGS; and in your article on gardening, squash-bugs are mentioned. I have tried a remedy for the bugs which I have never seen in print; and as it proved entirely successful in my case I will send it to you.

Make a thin batter of fresh cow manure and water, and apply with a whisk broom to the vines. The bugs will immediately decamp. It does not add to the beauty of the verdure for a while; but later, when they outgrow their covering, they seem to have been fertilized by the application. I have tried it on muskmelon-vines only, first in Wisconsin, and yesterday on vines in my garden here.

"HONEY TEA" FOR INDIGESTION.

While writing to you I will mention another "cure" which I call honey tea. A couple of tablespoonfuls of honey to a pint of water, boiled together for fifteen minutes, removing the scum as fast as it rises. Half or all of it, if desired, is drunk hot, one half to one hour before breakfast, and it can also be drunk cold any time during the day, when thirsty. It relieved me entirely of indigestion and constipation, which had troubled me for many years.

Westgate, Cal., Aug. 12. ALLEN JENKINS.

Thanks for your suggestion, my good friend. Your remedy for squash-bugs is the same as given Sept. 1, p. 626, last year. There is another good thing about it—an overdose would not harm your plants, as is the case with different kinds of poison; in fact, the more lavish you are with the preparation the better it will be for the vines.

TWO CROPS FROM THE SAME GROUND AT ONE AND THE SAME TIME.

For some time back I have been feeling happy to see the pictures on the outside cover of our great agricultural periodicals. I should greatly enjoy reading all these periodicals all the way through; but there are now so many of them that about all I can do with them is to look at the pictures, especially the pictures on the outside cover. Well, the *Iowa Agriculturist* gives us a cover picture in the August issue that deserves more than passing comment. It shows, first, a beautiful cornfield, many acres in extent, of rank, thrifty, beautiful corn which, at the time the picture was taken, was waist high; and right in among the corn is shown a large group of beautiful young girls and women. I do not suppose these bright young women (all happy-looking) *grew all their lives* in that corn, but they are certainly an Iowa product.

God bless Iowa and all the corn-growing States. If the good people away off across the water, instead of killing off their boys and girls, and men and women, would use their time and energies and intelligence in something like *corn-growing*, what a happy world this might be just now! On the contrary, while I write I suppose there are hundreds and *thousands* who are shedding their life's blood in an unaccountable desire *to cut each other to pieces*. May God help us.

TEMPERANCE

"OHIO DRY;" NATION-WIDE PROHIBITION, ETC.

I hardly need say to our Ohio readers, and perhaps to a great part of the people of the United States in general, that just now the good people of Ohio are massing their energies as never before to drive intoxicants entirely from our State, and to put at least one more State among those that have already adopted prohibition. Judging from past experience, and some sad and bitter experience, our great foe, and I might say our very *greatest* foe, is the indifference and stupidity of people who *might* vote if they would just take the pains to do so. When we get things up to such a point that everybody votes one way or the other, we shall achieve a big victory. Two years ago, when we failed ignominiously, it was found by careful search that thousands of good men, through indifference or pure laziness, did not go to the polls *at all;* and the saddest part of it is that those who did not vote were, by far the largest part, temperance people. The reason is very apparent. The wets made such a thorough canvass that they got hold of every man who could possibly be urged, by fair means or foul, to vote. They are doing this again and again. Here in our own county of Medina, people excuse themselves from going to the polls by saying, "Oh! Medina Co. will go dry any way; and the loss of one vote will be insignificant," etc. Now, our Ohio churches, Sunday-schools, Endeavor societies, are all enlisted in the work; and if we do our part as faithfully as the liquor-dealers do theirs, we certainly shall win. It can not be otherwise. It is *incredible* that there should be more *bad* voters in Ohio than good ones. Let me give you an illustration:

Just last week a man asked me when I was going to Florida. I told him I would go right after election. He said he did not think he wanted to wait till Nov. 3d; and when I remonstrated about losing his vote he said something like this:

"Why, what *particular* issue is at hand just now?"

We were both in a hurry, and I did not have time to question him further. But I have been wondering since then if he were not on the wet side, or so near there that he did not care very much about it. Now, if there are any like him whose eyes meet these lines, let me present the matter this way:

The wets have no other incentive, no other goal, than to make a little *more* money. They will tell you we want the money for *revenue*. They do not propose to build up churches, schools, nor any thing else, to *benefit* humanity. Their great plea is, if not their *only* plea, that saloons "make business." If we ask them to define what *kind* of business, they do not have very much to say. They are going to "make *money*" by voting wet, and making money is their sole object in life. Of course, they say a $1000 license or tax may be used to build good roads, etc. But the dry States and dry towns and cities are going *away ahead* in the way of such improvements. This is acknowledged now everywhere. Now, the drys are working *for the good of humanity*. It is *not* money they are after. It is for the benefit of the people. It is to protect the people. It is to lessen the number of criminals. All this has been gone over and over. We on the dry side are working for godliness, righteousness, temperance, and purity. Some of you may say that those who vote wet are not *all* bad men. Well, even if that is true, all bad men vote wet. Did you ever hear of a gambler, a highway robber, a pickpocket, or any sort of criminal, who did not vote wet and join in with the wets? Do you, my friend, want to be in that crowd? On the other hand, all good men and *women* are most if not all on the side of the drys. The wives and mothers—especially the mothers—if they had a chance would vote dry without question, for the sake of their sons and daughters, if nothing more; and the wets are fighting woman suffrage, tooth and nail, for they know what the result will be if the women get the ballot.

Now, is it possible that the voters of our State of Ohio should be found *more than half wet*, with the explanation I have given above? Let me digress a little.

On page 568 of our issue for July 15 I

spoke of a father and son who got into a quarrel through drink, and the father killed the son with a blow with a broomstick. Now, this old father was a good man, or was so considered by his neighbors. He had been the village blacksmith for many years, and was esteemed and beloved by all the neighborhood. He had only one failing, and that was—*strong drink.* When he was arrested for murder the good friends readily furnished bail, and he was given his liberty. But his peace of mind was gone. He pined away over the sad event till he was almost a skeleton. Well, just a few days ago, on a Sunday morning, when his folks were away, they found, on returning, his dead body hanging from the limb of an apple-tree back of his house. Murder, then suicide! Do some of you ask how this father and son procured their drink here in a proverbially dry county? Just over the dividing line, near where this man lived, is Lorain Co., and that county has saloons. Saturday nights buggies and automobiles are strung about in every direction quite a distance from that saloon. A wet county adjoining us is cursing the people of Medina Co. The county-seat of Lorain Co. is Elyria, a city of some 15,000 inhabitants. They have had many conflicts, but the wets beat every time, with the help of the still larger neighboring city of Lorain, in the same county. I told you of stopping in Elyria long enough to have my automobile charged. While hurrying along one of the busiest streets I passed a large show window with plate-glass front. That elegant and expensive show-window contained nothing but half-pint bottles labeled "whisky" in big letters. They were spread out in quite a display to attract the attention of passersby. I stood stock still in astonishment and indignation. I said to myself, and I may have said it out loud, " Is it possible that here in Elyria, on the busiest street, there can be found a man so lost to all sense of shame that he will unblushingly put out such a display as this? The exhibition is not only a disgrace to the city and county, but it is a disgrace to the State of Ohio." I looked about the premises to see if I could catch a glimpse of the fellow (I can not call him a man) who would have the cheek and hardihood to make a display like this, not only to tempt those who are fighting strong drink, but to tempt the boys on the street. May God help Lorain Co. and Elyria to rule out such an exhibit in open daylight before our people.

Now, then, friends of Ohio, there are only about thirty more days left, by the time this reaches you, to get hold of indifferent people, and urge upon them the importance of voting. A just and righteous law, if I am correct, forbids our furnishing money or any thing else to get an indifferent man to vote. The wets trample this law under foot almost without scruple; but we who are followers of the Lord Jesus Christ certainly can not think of trying to avoid or elude our Ohio laws or the laws of the United States. We can, however, take our automobiles and buggies and visit or talk to voters whenever we have good reason to think that such work will help to emancipate our State from the rum power. Think, friends, what it would mean to be able to say in November that Ohio is not only central in geography, but that it is *central* in taking the lead in *temperance, purity,* and *righteousness.*

VIRGINIA GOES DRY BY 25,000 MAJORITY.

May the Lord be praised for the good news we have from Virginia. We clip the following from the Cleveland *Plain Dealer:*

> 25,000 VIRGINIANS VOTE DOWN LIQUOR; DRYS RETURN IMMENSE MAJORITY WITH ONLY FOUR CITIES OPPOSING LANDSLIDE—ELECTION RESULTS WILL CAUSE ANNUAL REVENUE LOSS OF $700,000.
>
> RICHMOND, Va., Sept. 22.—Virginia to-day joined the dry States of the nation by returning a majority of more than 25,000 for Statewide prohibition.
>
> Not more than six out of the 100 counties in the State returned a majority against the proposition, and only the cities of Alexandria, Danville, Norfolk, and Richmond, out of the nineteen cities, gave a majority against Statewide prohibition.
>
> The election results will cause a loss in revenue of more than $700,000 annually to the State. The State becomes dry on and after Nov. 1, 1916. The general assembly has yet to pass the law to govern the State under prohibition.

While we are rejoicing in the above, it pains me more than I can tell to see my good friends of the *Plain Dealer* give us no better words of encouragement than that the people of Virginia are going to lose $700,000 in *revenue.* Great heavens! What does "revenue" amount to compared with the saving of our boys from drunkards' graves? Are the States that have been dry for years *suffering* from a lack of *revenue?* Are not the *mothers* of our land, to say nothing of the fathers, entitled to more consideration than revenue, even if they do not (just yet) win suffrage? For the time being I can change my little prayer, " Lord, help," to—" The Lord *has* helped." Blessed be his holy name!

We quote the following from the Anti-Saloon League Year-book for 1914:

> If the $538,815.03 of revenue from liquor were distributed among the 2,060,612 people in Virginia, it would be but a small fraction over 26 cents for each man, woman, boy, and girl in the State; and in a recent statement by the auditor he says that if prohibition should prevail the tax rate would need to be increased only three-fourths of one mill on each $1 of assessed real and personal property—or

7½ cents on the $100, or 75 cents on $1000, etc. He further says that, if proper returns of property for taxation were made by citizens, the rate of increase would be hardly more than four cents on each $100 of property.

SALOONS, AND THEIR INFLUENCE IN THE VICINITY OF MANUFACTHRING AND MINING COMPANIES, ETC.

We clip the following from *Bulletin* No. 15, sent out by the Colorado Fuel & Iron Co.:

THE STRUGGLE IN COLORADO FOR INDUSTRIAL FREEDOM.

THE EFFECT OF CLOSING SALOONS IN THE COLORADO COAL-MINING DISTRICT.

"The officers of The Colorado Fuel & Iron Company believe in the policy adopted by certain important railroads, prohibiting the use of intoxicating drinks by their employes both on and off duty; but many of the coal-mine employes demand their liquor, and, unfortunately, some will not work where it cannot be obtained.

"Experience shows that where no saloon is immediately available many workmen go as far as is necessary to find one, and there spend Saturday nights, Sundays and holidays, often returning unfit for work until after a day or two of rest, and the general service is always greatly disorganized by the incapacity of a few.

"With the advent of the Federal troops all saloons in the coal-mining districts were closed, and as a result the efficiency of the workmen has greatly improved, the average production of coal per man increasing 10 per cent.

"This has confirmed the view long held by us, that *if saloons and drinking could be eliminated from the coal districts, not only the miners but the companies would be greatly benefited.*

"What I have said applies specifically to the Colorado Fuel & Iron Company; but I think, in a general way, it is true of the coal-mining industry in the State."

Denver, September, 1914.

A PETITION WITH OVER 1000 SIGNATURES FROM THE EASTERN PENITENTIARY OF PENNSYLVANIA.

Out of a total of 1478 prisoners confined in the Eastern penitentiary, 1008 have drawn up and signed a petition which will be submitted to the next legislature seeking State-wide prohibition.

The petition is probably the strongest and most unique sociological plea ever made against the liquor-traffic. Without a word or even suggestion from Warden McKenty, it is said, the prisoners confined behind the forbidding walls of the institution signed their names, and in many instances volunteered to go before a legislative committee and tell how the saloon evil has wrecked their lives.

The vote was taken on Independence Day, and made public to-day.

On each petition was an appeal to make Independence Day memorable by signing the petition.

Three months ago the *Umpire*, the little paper published by the convicts, started a crusade against rum. Letters began to flow into the editorial room telling the personal stories of prisoners who claimed that were it not for whisky they would not now be serving time in prison.

The editor of the paper, himself a prisoner, was so impressed with the letters that he drafted a petition and sent it around the prison for signatures.

To-night he said: "I am greatly pleased with results. It proves, and conclusively, too, that the great majority of State-prison convicts were brought to ruin through the saloon evil. If the legislature desires evidence we are ready to supply witnesses. Think of it: 70 per cent of the men here assert that rum caused their downfall. Think of the wrecked homes, broken-hearted mothers, wives, and sisters."

The *Umpire's* editor has a bulk of letters that relate the personal experiences of convicts. Here is one written by a man serving ten years:

"I am serving a long sentence for manslaughter. Years ago I became involved in a saloon fight. One man was killed. My dear wife was forced to suffer a worse fate. She has struggled along with the little ones while I have been locked up. Her heart is broken; but good woman that she is, she keeps up the struggle for existence. Rum caused my downfall. Why should the sociologists and so-called learned men who are interested in penology go outside a prison for facts? The facts may be obtained in any penal institution."

SHE WAS WILLING TO LET HIM HAVE HER JOB.

The following story is vouched for by the president of a State Sunday-school association, and will be read with intreest by the majority of women—especially those who have had experiences with John Barleycorn in their own families.

In an Indiana town there were three churches and one saloon. The people decided to do all they could to vote the town dry at a coming election, and called a great mass meeting of the Christian people to map out a plan of campaign. A large crowd gathered, and the subject was discussed pro and con by all in attendance. A very clear and concise plan of action was decided upon, an open siege inaugurated against the one citadel of the liquor-traffic in the town.

Just before adjournment there came down the aisle an elderly man, well dressed, even courtly in appearance and manner. He asked for the privilege of speaking a moment, and the request was granted.

"I do not have to tell many of the people here to-night who I am," he said. "Most of you recognize me as the saloon-keeper whose business you have planned to attack to-night. You see I'm an old man. This has been my occupation for years, and I know no other job. If you vote this town dry you will ruin an old man when he is at an age where he can not possibly take up a new business. If you will withdraw your effort from this campaign, I'll promise to run a first-class saloon and observe every restriction of law. I promise it because I haven't any other job if you persist in your campaign and it terminates successfully."

After the saloon-keeper had finished speaking, and returned to his seat, there came down the aisle a modest little woman, plainly dressed, who also asked to say a word. Her request was also granted.

"I do not have to tell you to-night who I am," she said. "You know me as the washerwoman of your village—the woman who does six washings and four ironings every week. I do this to support my children and keep up my home. I have to do it because my husband spends his earnings down at this man's saloon. Now, if you Christian people will work so as to vote this town dry, thereby saving to our home and children the money that rightfully belongs there for its support, *I will be very glad to let this saloon-keeper have my job.—Cleveland News.*

A KIND WORD FROM AN 83-YEAR-OLD VETERAN.

GLEANINGS has been an inspiration and a pleasure to me for nearly 40 years—almost since the first issue —with the exception of about a year when laid up in the hospital. I am now nearing 83 years, and practically unable to read, and for two or three years have not been able to do any thing with my hives or supplies. These lines are for your edification. For several years I published a newspaper, and I know that, when a fellow hits the bull's eye, he likes to hear the bell ring. GLEANINGS has certainly hit the bull's eye, and I suspect the tingling of the bell is sweet music to your ears.

Belleville, Kan., June 9. O. A. A. GARDNER.

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Gleanings in Bee Culture

VOL. XLII. OCT. 15, 1914, NO. 20.

Gleanings in Bee Culture

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Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio

A. I. Root, Editor Home Department
J. T. Calvert, Business Manager
H. H. Root, Managing Editor
E. R. Root, Editor
A. L. Boyden, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLII. OCTOBER 15, 1914 NO. 20

EDITORIALS

Our Cover Picture

We believe that there are few places in the world where there is such an institution as a "bee-market," for, except under certain rather peculiar circumstances, there would hardly be an occasion for any thing of the kind. In Holland, however, there is a flourishing market in bees, which is an annual affair. This is described by Hans Matthes, on page 804, and is illustrated on our cover for this issue.

Wintering in Large Quadruple Winter Cases a la Holtermann

We are making our plans to winter one yard of bees in some of those large winter cases, four hives to the case, the same as used by R. F. Holtermann and others of Canada. We shall also put a certain number of colonies in the same yard in regular double-walled hives, with the view of comparing the difference between the two lots of bees. The results will be given later.

Feeding Bees with Honey

In Straws in the issue for Oct. 1, Dr. Miller believes that honey is worth 5 cts. per lb. more as a winter food than sugar syrup. While we believe the doctor's estimate is high, there may be some truth in his contention. If it were not for the danger of bee disease, the low price of cheap honey would make an added reason for using honey in place of sugar. However, there are probably many beekeepers who have medium-grade extracted of their own that they know to be free from any possible infection. Such honey can readily be fed to bees at a considerable saving; but all honey intended for winter food should be of the very best quality. Honey-dew honey and aster honey are of doubtful value. While bees may winter on them sometimes, it is attended with some risk. Such honey should be used for spring feeding and early fall feeding to raise young bees.

In feeding honey it should be diluted with water half and half. We have been feeding up one yard on Porto Rican honey. This was selected not only because it was cheap, but because no bee disease has ever been known in Porto Rico, and for a year or two back there have been very strict quarantine regulations on the importation of bees and queens to Porto Rico. The bees fed on this Porto Rican article have built up very satisfactorily, and have done well—better than those hauled to the swamps.

Why it Costs in the Neighborhood of Ten Cents a Mile or a Dollar a Day to Run the Average Automobile

Elsewhere in this department the statement is made that we charge up our bee-yards, in moving bees from point to point, the rate of 10 cts. a mile. To the uninitiated this looks like a very heavy charge. The question might be asked if we could not move the bees for less money per mile if we were to use a larger truck. The cost would be somewhat less per colony, it is true, but there would be a correspondingly larger depreciation expense, and wear and tear on the more expensive tires. But the same man who would operate a small automobile truck could run a larger one. But the big machine would be unwieldy if used in going to and from the yards for light loads, and for the great bulk of the hauling would be too slow. Most of the loads can be accommodated on the small truck with the additional advantage of less cost of upkeep and greater speed.

In this connection, every one who buys an automobile truck or a pleasure vehicle should understand very clearly that the cost of operation does not stop at the first cost of the machine and the price of gasoline and oil consumed per mile. The principal expense is the depreciation and tires. An average set of tires will run from three to four thousand miles, and cost $100 per set. This mileage is the average for one year. The average automobile will cost about $1000, and the depreciation the first year is about 30 per cent, and then 10 per cent each for the two years following, or 50 per cent in three years. The repairs will run from $50.00 to $100.00 per year. This means that the average automobile, either truck or pleasure-vehicle, will cost about $1.00 per day exclusive of the cost of gasoline and oil, which will be from 1 to 1¼ cents a mile, or a total cost of 10 cts. per mile. After looking over these figures the average person will conclude he cannot afford an automobile; but if he will stop and figure up the cost of a horse and buggy or wagon he will find the horse and rig will run considerably more per mile and considerably behind the machine in speed and range. A man with a self-propelling vehicle can do nearly five times the work in the same time.

If one buys a Ford automobile at something around $500, the cost of depreciation and tires will run about a half; and in buying cheap machines one should be slow about buying a new and untried make. The Ford has long since proven itself to be a first-class machine.

A practical conclusion of the whole matter is, that one whose income is less than three dollars a day cannot afford to run a pleasure vehicle costing $1000; but even at three dollars his family expenses will have to be cut to $2.00. A truck for one's business should be considered on another basis.

……

Grumbling over the Net-weight Law; Will it be a Nuisance or a Blessing?

We hear some grumbling over the net-weight law as it applies to comb honey. Many producers say they are going to quit the production of honey in the comb, because they cannot stand the nuisance of marking every single section. This will be a serious mistake. In the first place, the national net-weight law need not be any great annoyance to any one. We might as well make up our minds to conform to it first as well as last, and the sooner we do it the better. The law is now in effect, and he who will not mark his comb honey on interstate business will be rendering himself liable; and the man who is liable is the shipper, whether he be the producer or the dealer.

In the second place, it would be sheer folly to give up comb-honey production because of the fancied inconvenience of the net-weight law. Comb honey is now demanding comparatively good prices; but if every one rushes into the production of extracted honey and quits that in the comb, the price of extracted will sag worse than it is doing now. In the mean time comb honey will begin to soar. Those who stick to comb-honey production during 1915 with the other fellows out of competition will find a ready market at prices that will please. Let the unthinking and the careless go out of the business if they like; but the readers of this journal will find that marking the net weight on their comb honey is a comparatively simple job after they learn how.

In the end, we believe that the net-weight law will boost the production of comb honey, because it will insure a better article and a more uniform grading. The one thing that has handicapped the comb-honey business and demoralized prices has been the habit of some to put their combs—light, heavy, and medium—all in one case. The net-weight law will make it necessary to grade the sections carefully according to weight and filling; and this very compulsion will, in the end, result in better prices and a more stable market for comb honey.

……

The Price of Table Honey not Materially Affected by the War in Europe

Both comb and extracted honey for table purposes are more than holding their own —at least for the present. Indeed, there has been a slight advance in some quarters. Some dealers have been charging more for their comb honey to make up for the loss occasioned by the net-weight law. This is only natural. Extracted clover is holding firm. How long this condition can be maintained cannot be determined. Comb honey after the holidays always has a tendency to slump a little. There is no logical reason for this except that honey in the comb cannot readily be shipped in severely cold weather without danger of breakage or leakage. Furthermore, after the first half of the winter is already over, there is the greater probability of the comb honey granulating before it can be sold.

The fact that the surplusage of the enormous production of fruit in our Western States, as mentioned elsewhere, cannot be disposed of as heretofore in the markets of Europe will cause a glut in the markets of this country. A low price on fruit generally has a tendency to depress the price of table honey—or at least that has been the history of the past. But there is another factor in our favor this year that is to be considered. This overplus of fruit will have to be taken care of. The canning-factories will be doing a bigger business, for it will be a good time now to stock up when fruit is cheap or will be cheap. It is possible and even probable that these factories will see that the large advance in the price of sugar will warrant them in taking advantage of the very low price on honey of medium grades. This would have the effect of disposing of the superplusage of fruit, and at the same time increase the demand for the cheap honeys. When the canning-factories get to know that honey is superior to sugar for canning, and this year far cheaper, they will begin to use it in large quantities. The combination of these commodities ought to have a tendency to relieve both industries. The next thing is to get them together.

Beekeepers everywhere ought to sound the slogan, "Use honey for canning fruit and baking." Talk it to your neighbors; visit your canning-factories if you have them. If you have no cheap honey, write to your nearest commission house, and you will doubtless be able to get all you desire, both as regards quality and price.

Our Swamp Beekeeping

SPEAKING about swamp yards, our operations at these places are drawing to a close, and the bees are being hauled home preparatory to being placed in our mammoth bee-cellar. Two weeks ago there was a severe freeze in the vicinity of our Hudson yards, some thirty miles away. This killed even the asters. As it was not necessary to keep the bees there any longer they are now being brought home. Did our swamp beekeeping pay? We think it did, in spite of the fact that we charged up against the bees 10 cts. per mile for truck hauling.

SWAMP BEEKEEPING VERSUS FEEDING UP CHEAP HONEY NEAR HOME.

One of our outyards near home was left in its original location instead of hauling it into the swamps. To this we fed cheap Porto Rican honey, not only because the honey was of good quality, but because it was free from bee disease. Foul brood has never been known in Porto Rico, and the strict quarantine regulations against the importation of bees, queens, colonies, or combs will probably prevent the disease from getting into the island. For that reason we have thought that the honey from that island would be perfectly safe to feed without boiling. The expense of building up this yard on Porto Rican honey will be a little more than the expense of operating the bees at the swamp yards where we did no feeding; but the increase on this Porto Rican honey has been very satisfactory, and the boys report that the bees are in excellent condition.

The question may be asked why we charge ten cents a mile for hauling bees with our own automobile truck. Experience shows that it cannot be operated for less. A horse-drawn vehicle or wagon will cost as much because so much of the time in the winter the horse is "eating his head off."

A yard 30 miles away would have to have $6.00 entered against it for one round trip of 30 colonies on the basis of 10 cts. a mile. If there were 60 colonies at the yard, that would make a charge of $12.00, or at the rate of 20 cts. a colony. Add to this the cost of operation by loçal men near the bees, and the entire charge would be about 50 cts. per colony.

At the outyard near Medina we fed about 20 lbs. of Porto Rican honey. This would make a charge of $1.00 per colony, plus the labor. It will be seen that, even when bees are 30 miles away, the balance is in favor of the swamp proposition. But we have several yards, 7, 10, and 15 miles away, hence the truck hire per colony will be correspondingly reduced. For example, a yard ten miles away would have a truck charge of 7 cents per colony. Taking every thing into consideration, the trucking, even at a charge of 10 cts. per mile, providing there is bee pasturage 10, 15, or 20 miles away, is a savinig over feeding. If the aster honey causes dysentery later the difference may be in favor of the fed colonies.

Candy vs. Sealed Stores

WE have been somewhat surprised to receive a number of inquiries from beekeepers who are planning to rely on candy almost entirely for winter stores, and who wish to know the latest developments in the making of the candy. Our feeling all along has been that the specific value of candy lies in the fact that it can be supplied during cold weather when the feeding of syrup would be impossible. It is true that we have ventured the suggestion once or twice that candy *might* some time be a safe all-winter food instead of syrup. However, in view of the fact that there have been some reports of failure it would seem to us an unwise procedure at present for any beekeeper to plan in advance to use candy alone, especially when there is still time in most localities, at least, to feed sugar syrup. There may come a time when the making of bee candy will have become so perfected that it can be relied upon in the fall, winter, and spring; but we cannot consistently advise that now. We believe that candy should be used in cases of emergency to prevent actual starvation during cold weather. Our experiments have been conducted with a view of determining just how far such candy may be relied upon, the results of which have been published in these columns from time to time.

Especially at this time when the price of sugar is "sky-high," as one beekeeper put it, the cost of providing winter stores is indeed a serious question. It must be remembered that the labor required in making candy is an item of considerable importance. We have had no experience ourselves in making the Fuller candy; but the hard candy is apt to cost nearly twice as much as an amount of sugar syrup which would last the bees the same length of time. Of course this is only an approximate figure, as so much depends upon the method of making, the facilities at hand, etc.

Usually some honey is added to the hard candy. Of course, such honey, by reason of the high and long-continued heat, is rendered sterile so far as any brood disease is concerned. However, sugar syrup is, of course, sterile in the first place.

Many beekeepers will prefer to feed honey instead of sugar syrup this fall because of the high price of the latter. It must not be forgotten that honey bought on the open market is an unsafe food for bees, owing to the danger of introducing foul brood of one type or the other. If the honey has been heated, as explained in the editorial in the last issue this danger, especially in the case of European foul brood, is vastly less. However, it will be well for all beekeepers, if they do not know the source of the honey, to err on the safe side.

We hope that there will be few who, on account of the high cost of sugar, will run any risk in regard to the quantity of the stores. Wintering a colony on barely enough stores is always pennywise and pound foolish; and it is no less so under the present conditions.

The War, and its Effect on the Price of our Domestic Honeys for Manufacturing Purposes

We have received numerous letters from the beekeepers in the Southern States asking what the matter is with the honey market. They are saying they cannot get any offerings for extracted of medium grade. The situation will be a little better understood when we state that we have positive knowledge of some West Indian honey of good quality being sold in the New York markets as low as 42 cents a gallon. This honey formerly went to Europe like all other South American and West Indian honey, and brought good prices, ranging around a dollar a gallon. It will, therefore, be seen that South American honey and other West Indian honeys that come into the United States will net their producers practically nothing after paying freight, commission, and duty. The duty on honey now is 10 cents a gallon. Let us suppose that the price in New York is 42 cents a gallon. Deducting from this 10 cents, it will leave 32 cents, or nearly 3 cts. per lb. Out of this must come package, freight, and commission. It can easily be seen that the producers in South America and the West Indies, with their large crops on hand, and with no prospect of selling it at all in the European markets, will probably unload in the United States, and we cannot blame them. We would do likewise. Possibly they may hold it until after the war. "After the war"—no one knows when that will be. In any event it means that these honeys will come to the United States and set a lower level for a good part, perhaps, of our domestic Southern honey, and for Northern honey used for baking and canning, and general manufacturing purposes. Of course, it does not follow that because foreign honeys are cheap that domestic cheap honey must fall to the same level. Nor will it.

We are also reliably informed that the Rocky Mountain districts that have been producing carloads of fruit have almost no market for their product. They have hitherto shipped it to England and Germany. America produces more fruit than she can consume. The surplus hitherto has been going to Europe at fair prices. In the same way that the fruit interests of the Western slope are suffering, honey in that region has been coming in for its share. But fruit is perishable unless it is canned; but honey can be kept till "after the war," whatever that may mean.

The war-lords of Europe are committing an awful crime against civilization. The individual members of that civilization, the women and children and the non-combatants, and the peace-lovers out of the war-zone are going to be the ones to suffer. If the wrath of the world would do any good toward putting a stop to this awful destruction of life and property, the conflict would speedily come to a close. But it begins to look now like a world's civil war; and all for what?

While we are apparently sounding a pessimistic note, we are optimistic enough to believe that the great Creator of worlds, as he always has done, will bring good out of evil.

STRAY STRAWS

Dr. C. C. Miller **Marengo, Ill.**

In the long run I don't believe it pays to cage a second virgin in a nucleus awaiting the laying and removal of the first. A dozen or so that I have tried this year were as long about laying after being out of the cage as others were from time of birth. But it's a convenience sometimes when you have a virgin that you have no immediate use for. [We do not practice the caging of a virgin in a nucleus except when we have more queens than nuclei; but it is convenient sometimes, as you say, and very often it saves valuable time.—Ed.]

You ask, Mr. Editor, p. 619, whether I replace all queens when two years old. No. Also, whether I replace my failing queens with young and vigorous ones. Sure. More than that, I like to replace a queen that doesn't come up to the mark, whether she is failing or not, young or old. But a good queen is not by any means always a failing queen when two years old, and as a rule will be superseded in good time without my meddling. Others say their queens do poorer work after they have passed their first year; and if I had such queens I would replace them.

Now and again some one advances the idea that where locations within a few miles differ in honey-flow, the mere dividing into two or more apiaries will increase the total income. Fallacy! If bees in my home yard average 100 pounds per colony in even years, and nothing in odd years, and if 5 miles away the yield is 100 pounds per colony in odd years, and nothing in even years, and if I have 10 colonies in each place, I'll get 1000 pounds each year, or 2000 pounds in two years. If I keep the whole 20 at home I'll get nothing one year and 2000 the next. So it's 2000 each two years, whichever way you do. The only advantage in dividing is the more regular income, which is hardly enough for the extra bother.

You ask, Mr. Editor, p. 749, "What element is there in honey that the bees need that is not found in good pollen and sugar syrup?" Tote fair, please. Pollen was not in the game. You say, "When natural pollen comes in the spring the bees will probably get all the elements they need." Like enough, for they'll get nectar then. Still, I'll answer your question by referring to the A B C and X Y Z. There I find this: Honey contains small percentages of a number of substances which greatly help in detecting adulteration by their absence, which is equivalent to saying that a number of substances are found in honey that are absent in sugar syrup. Just what those substances are I do not find recorded in the same authority, as it might well be, although I find on the same page that honey contains phosphates. These different substances I believe bees need. They are not found in sugar syrup, and I don't believe they're found in pollen. As you say, the subject is important. I can hardly say that I *know* honey is 5 cents a pound better than sugar; but my belief in its superiority is so great that more than once I've fed small amounts of section honey rather than to feed sugar at 5 cents a pound. [But, supposing pollen was not in the game, it is usually in the hive. If the colony be fed good sugar syrup, and has plenty of pollen, does it not have practically all the necessary food elements? However, we are not saying you are not right, and our columns are open for a further discussion of the subject. See what R. F. Holtermann and Ila Mitchener say elsewhere. See editorial.—Ed.]

A periodical warning should be sounded against careless mailing of diseased brood. Here's what happened: Aug. 24 our family was absent from home from 7 A. M. till 3 P. M. Arriving home I found in the mail-box a brood-comb containing American foul brood, which the rural carrier had deposited there at 9 A. M. It was done up in pasteboard with one corner open, allowing free entrance for the bees! No; no harm came of it. The bees had never found it, as shown by the honey daubed over letters and papers, which they would have licked up if they had found it in the open box. The secret of escape was an exceptionally cool day, with mercury never above 67 degrees. But it was not the sender's fault that I didn't have an experience I'm not hankering for. But I'm not the one to send samples to, any way. Dr. E. F. Phillips, Agricultural Dept., Washington, D. C., is the man for such fragrant morsels. [Some two or three years ago we used to be annoyed not a little by packages of foul brood being sent to us in broken and leaking condition. Fortunately, in every case they were delivered inside of our offices, where they were promptly taken care of; but no packages have been received here during the last year or so, because they have all been sent to Washington. But even when sent to Uncle Sam they ought to be properly packed. Nothing less than a stout wooden box should be used, and in addition the piece of comb should be wrapped in paraffine or oiled paper.—Ed.]

J. E. Crane

SIFTINGS

Middlebury, Vt.

I believe the honey reports in the Aug. 1st issuse of GLEANINGS are the most complete we have ever had.

* * *

A neighbor recently brought me a squash-blossom with seven dead bees in it, evidently caused by several unseasonably cold days. It shows how rapidly unfavorable conditions deplete our hives.

* * *

Dr. C. C. Miller, page 403, June 1, refers to liquor advertisements in the large city papers. I ran across something new along this line last week on a wayside guideboard like this: Granville, 5 miles, wet; Wills, 4 miles, dry; Pawlet, 2 miles, damp.

* * *

E. H. Harris, page 628, Aug. 15, tells how to make concrete hive-stands. It looks like a nice thing. One of my beekeeping friends showed me this summer his hive-stands made from slabs of slate, about 18 by 30 inches. These may pay in some places, but would be too expensive in others.

* * *

I am much interested in that thousand-acre swamp. With us I have found the swamp-milkweed to yield honey very freely, while in other years I could find few or no bees on it. I believe the boneset one of the surest honey-plants; and fortunate indeed are those beekeepers who have a supply of it for fall forage.

* * *

It must be a source of much pleasure to the beekeepers of northern Michigan to know that their honey resources are on the increase in the constant increase of milkweed. I have not forgotten the very enjoyable day I spent with Mr. Kirkpatrick, of Rapid City, some years ago, nor the fine sample of milkweed Mr.Ira Bartlett brought to his table. I believe it should be classed with our best honeys. See page 573, Aug. 1.

* * *

Much space is given in the editorial department of GLEANINGS for Aug. 15 to a discussion of the net-weight law, which is certainly timely and helpful. The law will certainly make the putting-up of comb honey more expensive, and the beekeeper should receive more for it. I see no reason why we may not weigh our honey and put the weights on the cases the same as before; but as they would not correspond with the net weights on the individual sections it would most likely lead to confusion and trouble. On the other hand, we may sell to the wholesale dealer by the case or number of No. 1 combs, as has been practiced for some time, I believe, in the West. One beekeeper of my acquaintance told me he was marking all his sections or cartons "Not less than five ounces." This may be within the letter of the law, but hardly within the spirit of it. In fact, it would seem to nullify the law, making it of no value whatever [A beekeeper who marks his comb honey "Not less than 5 ounces" would, in our judgment, be rendering himself liable. By so doing he is actually concealing the weight of the contents of the sections. The intent of the law is plainly to give to the consumer a close idea of how much he is buying for the money. The plan pursued by your beekeeping friend would utterly defeat the intent of the law, and we believe that any court in the land would call such a practice a distinct violation.—ED.]

* * *

You tell us, page 570, Aug. 1, Mr. Editor, that, according to experiments made by Mr. Selser, of Philadelphia, a colony of bees can be made for about a dollar's worth of sugar. Well, just what do you mean by making a colony? From some experience we have had this season we find that it takes about twenty pounds of sugar to draw out the foundation of a ten-frame hive; as much more to provision them for winter, and half or two-thirds as much to rear young bees to make the colony. Then the frames and foundation will cost about a dollar, to say nothing of the rest of the hive. Then there is a queen to be provided, which, if bought, would spoil another dollar. [In quoting Mr. Selser we meant only the sugar—not the hives, comb foundation, nor extra feeding to put bees into their winter quarters. We have just been out interviewing the foreman of our yard as to how much sugar it takes to draw out ten combs. He pointed out one colony which he thought would be a fair average that drew out six frames of foundation half way on one quart of sugar syrup, half sugar and half water. Another feed like this would cause them to draw the combs clear out; but in order to make the bees do this a feeder must be used that feeds very slowly. We use the Boardman that has only one or two small pinholes. The bees get the syrup very slowly; and this *constant* incoming of feed works a great deal better than a large quantity that is shortly taken up with no more coming in for several days.—ED.]

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

From all the information in hand, the year 1914 has been one of the biggest honey-crop years that Texas has had. The bees are in splendid condition, and in the cotton belt they are gathering an excellent crop from this source.

* * *

The net-weight law should be studied by our Texas beekeepers and all others, as well as the beekeepers in the North, where this question is receiving so much attention at the present moment. As Agricultural Expert in the State Department of Agriculture, I will prepare a statement concerning this matter, as it pertains to Texas and its beekeepers, for the next issue.

* * *

The European war has had a striking effect on the honey market in this State, Texas, if not in all the Southern States. Cotton is the most important money crop in these States; but since the war came just at the time this fleecy staple was beginning to move to the markets, conditions were deplorable. As a result of this condition, money was very scarce, and the entire population fell into a state of discouragement. Only the most necessary articles were purchased during this time of distress; and since honey is more or less of a luxury, there was no demand for it. Times are decidedly more favorable now, and the honey market is better, which is shown by the fact that orders have been coming in at a very lively clip during the past week. Just what effect the continuance of the war for any length of time will have on the Southern beekeepers is difficult to say.

* * *

The question of the proper amount of rent to pay for a location for an out-apiary has come up very frequently. Since there are such varying conditions and circumstances to determine the price that should be paid, there is no set rule as to the proper rental for out-apiary locations. I have found some persons who did not desire any thing in return for the privilege extended us by permitting us to place an apiary on their land. But as a good location is a valuable asset in extensive out-apiary management we can well afford to remunerate the owner of the land that we use. We have generally figured that a money rent of $10, and some honey also, is a fair compensation for a location where 100 colonies can be kept. Since my apiaries contain only about 50 colonies, I have paid just half the above amount. In fact, each one of my locations costs me now five dollars in cash and about five dollars' worth of honey a year. Those property-owners who at first did not want any rent at all have been educated to take it.

* * *

THE TEXAS HONEY MARKET.

Present indications are to the effect that the honey market is stiffening up considerably, judging from the large number of honey orders coming in. There is also a better movement of honey to market in several of the Southwest-Texas sections just visited by the writer. The greater part of the Southwest Texas crop is marketed, and this means the bulk of the entire Texas honey crop.

Good prices were obtained by most of the beekeepers in this section who had an early crop and disposed of it early. A little later the market price was considerably depressed on account of the great rush of honey to the markets, and underselling on the part of a large number of beekeepers who got their honey ready for the market a little later in the rush, and who were too anxious to move their crop.

There is still a large quantity of honey unmarketed; but much of it will be moved before winter. Such as is already packed as bulk comb honey, as well as extracted, is subject to granulation as soon as cold weather comes on, and it is wise, therefore, to get it off to market.

To overcome this serious objection I have but very little honey packed in advance of orders. It saves trouble from granulation, and gives me the further advantage of getting the freshly packed honey to destination in first-class condition.

My new honey-house, with a good warm sub-basement, provided with heating apparatus to permit keeping this space warm in extremely cold weather will enable me to keep over winter any amount of comb honey. Any extracted honey that may be granulated can easily be reliquefied, since we heat all of the liquid honey to pack the comb honey with, and are equipped for doing it. This will save worrying over having to dispose of the honey before winter, and helps us to get the better prices in the spring.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

So far as my knowledge of the matter runs, we have had less destructive forest fires during the past summer than for several years past.

* * *

Some advice that does not conform with my ideas has recently crept into print as to what to do with drone comb. The place for drone comb is in the melting-tank as quickly as possible. The only place I ever care for drone comb is to mass a few combs on colonies from which drones for mating are desirable. Any colony will patch in enough drone-cells for practical purposes. Out of 4000 combs in my apiary I have less than half a dozen that are not drawn on full sheets of foundation. Beekeeping on extensive lines leaves no place for drone culture.

* * *

In those localities where bluecurl abounds bees are working finely, and bid fair to go into winter quarters with an abundance of young bees and combs well filled with both honey and pollen. There is very little pollen, however, from this plant. A very peculiar and interesting thing in this connection is the fact that bees working on it get entirely covered with a light greenish-yellow pollen while gathering honey, but make no attempt to collect it to store. Were it not for the great stimulative effect of the late flow I would prefer not to have this honey in my combs, for it will candy in sealed cells within a few weeks. If extracted it becomes almost a solid mass of hard candy like honey in a few days, yet it is one of the whitest of all our honeys, not taking into consideration soil, climatic conditions, elevation, etc.

* * *

During my requeening operations this season I tried the plan of mating a virgin above an excluder with an entrance above and one below. The test was made on about 75 colonies. Where there was an old queen below, the plan, in almost every case, was a failure. Where the old queen was removed, and a cell given both above and below, both cells were accepted and the virgins could be found for several days after hatching; but as soon as one became mated, the other (in the majority of cases) disappeared. I was able, however, to get quite a number mated, both above and below, but removed them, as soon as mated, for safety. Eight or ten colonies were left with mated queens both above and below; but after a month's time but two colonies contained both queens. The two were laying nicely, with a large amount of brood both above and below. I also tried the project on three super hives, using two excluders to separate the queens further, but my success was little better. One of the valuable features of this plan I found to be the almost absolute certainty of getting a mated queen in one of the divisions and thus avoid the necessity of making the second trial, to say nothing of the advantage of getting the colony re-established as quickly as possible.

These experiments were tried without using brood above, so it is possible my success would have been greater had I used a frame or two of brood above. I expect to give the latter plan a thorough trial next season.

* * *

There is considerable agitation among employers in general over the initiative ordinance proposed, by which the hours of labor are restricted to eight hours per day. This ordinance is to be voted on at our November election, and is being fought bitterly by fruit-men as well as generally by ranchers, beekeepers, and all who employ labor. It makes all the difference in the world as to whether you are the employee or the employer as to how you feel. But for one feature of the law—that which makes it a penalty to work or permit help to labor more than eight hours per day, regardless of the consideration of extra compensation for additional time that could be used to advantage in cases where both the employee and the employer were willing—I would be heartily in favor of the law. This one feature, however, makes it quite objectionable to both parties in many cases. Morally I believe the world would be much better if the laborer were given a better chance to relax from arduous labor long enough each day to get better acquainted with his family, and have more of the responsibility of growing sons, who, to a great extent, need the influence of the father. This world is not made of dollars alone, and our people are finding it out more and more as time goes by. Our first consideration should be for the moral uplift and betterment of our people; and if an eight-hour day will help, we should have it. Should the blight of saloons be driven from our State, the effect would be far greater; for there is no use denying that the retreat of a certain class of our laborers is more apt to be the saloon than the home.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

"Do bees on one trip visit different kinds of flowers in gathering honey, or do they go to those of one species only? If one species only, how comes it that we get mixed honey in the same comb?"

I have repeatedly seen bees at work on both the gooseberry and the currant, where the bushes were side by side in rows, although the gooseberry seemed to yield the more nectar, or, at least, the bees spent much more time on each blossom of the gooseberry than on the currant. I have also seen them go from the black variety of raspberry to that of the red, and *vice versa,* though the red variety seems much preferred. Then I have seen a single bee visit the blossoms of red, white, and alsike clover, spending more time on each little floweret of the red than on the others. But this cannot be taken as conclusive proof that bees gather honey or nectar promiscuously, for I do not believe they do. It will be observed that all of the above were of the same species of plants, or very nearly so. Teasel and basswood are in bloom at the same time in this locality, but never, in all of my observation, did I ever see a single bee go from teasel to basswood, or from basswood to the teasel when they were gathering nectar. Since the nectar from basswood needed very little evaporation to make it the consistency of honey, while the nectar from teasel is always very thin, I supposed that bees would naturally desert the teasel flowers for the basswood, but I did not see them doing this, even where limbs of the basswood hung down with their flowers almost touching the tops of the teasel-plants. In one instance a field was sown to buckwheat very early, so that the bloom came in before the teasel was out of bloom, yet never a bee went from one to the other, so far as I could discover, though a portion of these fields lay side by side.

But about the mixing of the different honey in the combs: Bees do not seem to be as careful in this matter as we are, for often when one bee comes in from the basswood or teasel field she deposits her load in a cell, to be followed a little later by her sister, who is working on buckwheat, and who does not seem to realize that all honey from white blossoms should not go in the same cell. Even though the color, taste, or smell be not the same "it's honey all'e samee." In this locality we often have our prospects of the best price for a nice white teasel or basswood honey knocked down to a second or third place by some farmer putting in a field of buckwheat the middle of June instead of the 10th of July.

"On going to the beeyard one morning in early August I found several hundred little round caps of wax on the alighting-board near the entrance of a hive. I called the attention of an old beekeeper to these a little later, and he said it was a case of robbing. Do you agree?"

I do not agree. Some suppose that such round caps indicate the uncapping of cells of honey, either by robbers or preparatory to the carrying of the honey from one position in the hive to the other; but this is a mistake, as the cappings of the honey-cells are gnawed off in little fragments, and not in the round form spoken of. So far as my observation goes, and I have discovered these round caps several times, the finding of such caps signifies that drones are hatching out, as any one can prove by taking the pains and time to examine, for he will find that the drone, before emerging from his cell, bites the cover of the cell entirely off by a smooth cut, while the workers leave only fragments of the cappings of their cell-coverings when emerging. The queen cuts off the capping of her cell the same as does the drone, except, as a rule, a little piece on one side is left, which often acts like the hinge to a door, this door often being closed after the queen has gone out, through some careless worker rubbing up against it. Where no such hinge is left, then the caps to the queen-cells are tumbled out of the hive the same as are the drone cappings; but in no case, probably, would there be as many caps from queen-cells as our correspondent mentions.

If the little door closes as mentioned above, the bees often make it fast by waxing or using propolis, so that the inexperienced beekeeper is often deceived into thinking that the queen has not yet emerged from her cell, as I was once when I cut out three such cells from a parent colony which had swarmed, having a "best queen," giving these cells to nuclei. Of course the nuclei remained queenless till "live" cells were given them later. If often happens, as soon as the queen has emerged from her cell, that a worker goes into the cell to partake of the royal jelly left unused in the cell, after which the cell-cover is crowded back by the ever traveling bees, and the worker is a prisoner, causing even some good apiarists to claim that workers sometimes develop in queen-cells. It is well to understand all these little things in bee culture.

GENERAL CORRESPONDENCE

SPRAY-POISONING AND EUROPEAN FOUL BROOD IN COLORADO

A Reply to Dr. Phillips' Letter in August 15th Gleanings, page 615

BY WESLEY FOSTER

In the August 15th issue, page 615, Dr. Phillips gave it as his opinion that the trouble complained of in Colorado, of bees dying, was not the direct result of spraying, as has been alleged, but was due to European foul brood. It seems this "raised a storm" of protest that this was not true in most cases, at least. At all events, our correspondent, Wesley Foster, replies:

Losses of bees from spraying have been reported to me from Montrose, Delta, Mesa, and Fremont counties for three years. The most disastrous losses that the writer has observed were at Canon City, in Fremont County, two years ago. The leaf-roller threatened the destruction of the orchards, and spraying was recommended during fruit bloom, which was done. The destruction of hundreds of colonies followed, and practically all colonies within range of the fruit-trees were reduced in numbers very seriously. The affected bees would be seen crawling and hopping away from the hives early in the morning and in the evening, but would not be so noticeable during the day. The abdomens would be swollen, and the bees able to fly but a few inches. A few minutes later one would notice the same bees scarcely able to crawl, many dying soon, while others seemed to rally and fly away. In the evening the bees would cluster in little bunches in the grass or in depressions in the ground about the hives. Ditches and holes in the ground would often be found full of dead and dying bees. No brood that I saw at that time appeared to be affected except from chilling and lack of care. I think that but very little brood if any is affected by the poison, as it seems the bees rush out of the hive in agony as soon as they get any of the feed. The poisoned nectar must be carried into the hives by the field workers, for newly hatched bees will be seen crawling away from the entrances in large numbers, probably getting poisoned with their first sip of nectar from the cells. It seems probable that the poison acts less rapidly upon the bee when the nectar is in the honey-sac than when the nectar is taken for food.

In this connection I might say that there has been considerable doubt whether bees can be poisoned by arsenical spray, from the fact that the spray as mixed by most fruit-growers is hardly strong enough to kill any thing but the larvæ of the codling moth.

I do not know what strength liquid was used in spraying for the leaf-roller at Canon City, but it was probably about the same as used for the codling moth.

SPRAYING AND COVER CROPPING.

All successful orchardists now are realizing the importance of some cover crop in the orchard. These cover crops have been put in very largely during the last four years, and the time is not far off when all the commercial orchards will have some crop —alfalfa, red clover, sweet clover, or alsike sown under and between the trees. The orchardist who sprays his trees during bloom is not the peril, although he often does serious damage. The spraying of the trees from one to seven times during the growing season of the apples when the cover crops are in bloom is the menace, and has been the cause of most of the losses in western Colorado this year. It was noticed in Delta County, that, right after the large alfalfa-fields were all cut, and before sweet clover came in bloom, the red clover in the orchards was visited very largely by the bees; and right at this time, which was late in June, spraying was being done. In one week whole apiaries were either destroyed or rendered nothing but nuclei. Dozens of colonies swarmed out and absconded, leaving honey and brood in all stages. New swarms, hived previously to the scourge of poisoned nectar, absconded also, after drawing comb and getting nicely started at brood-rearing.

Many of the beekeepers in Montrose and Delta counties saved their bees by moving away from the orchards.

I visited Montrose and Delta counties the latter part of August, and spent some time in Mr. J. G. Brown's apiary at Montrose. This is the apiary that he gives an account of in GLEANINGS for August 15, page 641. Mr. Brown told me that he had not noticed the brood as being affected to any great extent, the main symptom being the adult bees hopping about in front of the hives and bunching up in little clusters. This was in evidence still when I was there, and I gathered up several hundred, although the numbers were nothing like as numerous as Mr. Brown said they were earlier in the season.

One thing that I had not previously known was that the poisoning gave many of the bees a malady which apparently was dysentery. The yellow deposit on the hives and in front of the entrances was plainly visible. I examined a number of apiaries in Montrose County, where spray-poisoning had been reported, and I found no evidences of European foul brood. Then in company with J. C. Matthews, George Nichols, E. D. Nichols, and J. G. Brown, I went to Mr. R. W. Ensley's home in Delta County. Mr. Ensley had lost a great many bees at his home yard, and had moved most of the bees away; but we examined a dozen or more colonies, but could find nothing that resembled the descriptions of European foul brood. Mr. Matthews, Mr. Brown, Mr. E. D. Nichols, and his son, George Nichols, then left in Mr. Matthews' auto for Montrose, and Mr. Ensley and I started the next morning for Paonia, where Mr. Ensley secured the sample of brood which Dr. Phillips reported as affected with European foul brood. Paonia is nearly thirty miles from Mr. Ensley's; and after stopping on the way to examine one apiary we reached Paonia by night.

During the next two days we examined practically all the apiaries within a radius of six or seven miles, and found no European foul brood more than 1½ miles from the apiary where Mr. Ensley secured the sample. There are three apiaries affected that are so far known. There are none but Italian bees in the district; and in one apiary which was not seriously injured by the spraying, though European foul brood is quite plentiful, a good crop of honey is being harvested.

From what I see now I think that the disease can be cleaned out. It appears to me that the heavy losses of bees from spraying probably so weakened the colonies that European foul brood got a good start. No strong colonies seemed to be affected, and swarms hived on combs affected cleaned them out, and the disease did not reappear except in a mild degree, and the bees seemed to have the upper hand.

Dr. Phillips' letter to Editor Root, published in the editorial columns of August 15th Gleanings, page 615, has raised a storm in Western Colorado. Some said that probably all European foul brood is, any way, spray-poisoning. Others ventured the opinion that spray-poisoning could probably cause European foul brood. The sentiment seemed to be quite prevalent that, if what they had was European foul brood, it could be easily cured by moving out of the fruit district, which many had done and thus cured their trouble.

The statement of Dr. Phillips, that European foul brood is worse than a little surplus arsenate of lead, gives the impression that European foul brood must be very destructive, as half of some large apiaries were wiped out by spray-poisoning in five days, or what was alleged to be spray-poisoning.

I think that the beekeepers in the fruit districts will have to make arrangements to have the clover cut before spraying. I believe it a mistake to look for spray-poisoning in the brood; but all should keep on the lookout for European foul brood. From indications so far I think that spray-poisoning has been far more destructive than European foul brood; but the beekeeper who gets both along with American foul brood and a poor season has about met his Waterloo.

To sum up, I have been unable to find any evidences of European foul brood in the large beekeeping districts of western Colorado where spraying has been seriously complained of except in one very restricted district.

Moving the bees away from the orchards has been generally followed, and has proven successful. Fortunately none of the bees in the district where European foul brood is present have been moved this season.

The owner of one of the affected apiaries told me that he had noticed this trouble for several years, and I saw on one of his record-cards (these beekeepers all use records) these words: "Not foul brood, but what is it?" It did not answer the description of sac brood or American foul brood, and he had it under observation when I got there.

In another hive I found a beautiful sample of diseased comb of both American foul brood and European foul brood. All the brood was dead in either one or the other, in the proportion of about half and half. This colony had been treated for American foul brood; and some one who can, please tell me what a small colony in the fall will be worth after it has been treated for both.

Boulder, Col.

[While it is not our purpose at this time to take any hand in this controversy, we might add that we have had numerous reports of bees dying. They had visited clovers under trees that had been sprayed to kill the codling moth.—Ed.]

COMBINATION HIVE-BOTTOM AND FEEDER

BY WILLIAM BEUCUS

For a long time I had wished for a feeder free from the objectionable features of the feeders now offered for sale by the supply houses. The Miller I tried; in fact, there are now in the attic some twenty of these which will never be used again. The objections to this feeder are: It is made of wood and gets leaky; it must have a super to go permanently with it, which is expensive, or a super must be emptied to be used, which requires expenditure of time and labor; and, when used in cool weather, a weak or only fairly strong colony will not go up after the feed.

The Boardman feeder is not large enough. The bees will not take the feed in cool weather; and every time it is used it must be hunted up and afterward put away again.

The Doolittle feeder is made of wood, and gets leaky. It is too small to be used for feeding for winter, and the hive must be opened to get the feed in. Lastly, like other feeders, it must be removed and stored away.

The Alexander feeder is too small, but it is in the right place. It is not, however, a permanent part of the hive, and it is made of wood. It will get leaky.

The pepper-box feeder—well, let's not mention it.

I desired to have a feeder which would fill certain requirements. It must not be made of wood, thus preventing leakage. It must be large enough to feed up for winter at a single feed, if necessary. It must be a permanent part of the hive—always in place. It must be placed where bees will most likely reach the feed.

An article in GLEANINGS by J. E. Hand, describing his large pan feeder, adopted from Quinby, gave me an idea which was developed into the combination hive-bottom and feeder illustrated herewith.

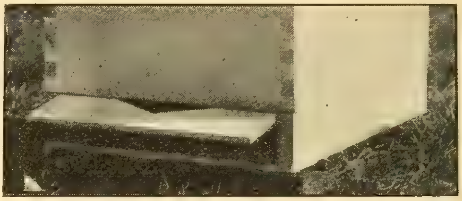


FIG. 1.—Beucus' feeder and hive-bottom with entrance-contracting block in place.

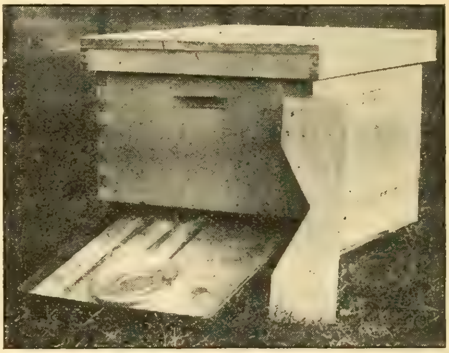


FIG. 2.—The feeder-pan pulled out to show the float.

The bottom is a simple shallow chamber, 2¾ inches deep, with the front removable, as shown in Fig. 3. In Fig. 1 the notched adjustable entrance piece, with wire netting underneath, is shown in place. It is far ahead of the old-fashioned entrance-blocks, which are always getting lost.

In Fig. 2 is shown the feeder, a pan 14 x 17 inches, and also its float. The tin cover is used to bring a small quantity of feed up close to the frames for a very weak colony. To put feed into either the cover or the feeder it is not necessary to draw out the pan. Just insert a small hose at the entrance and pour the desired

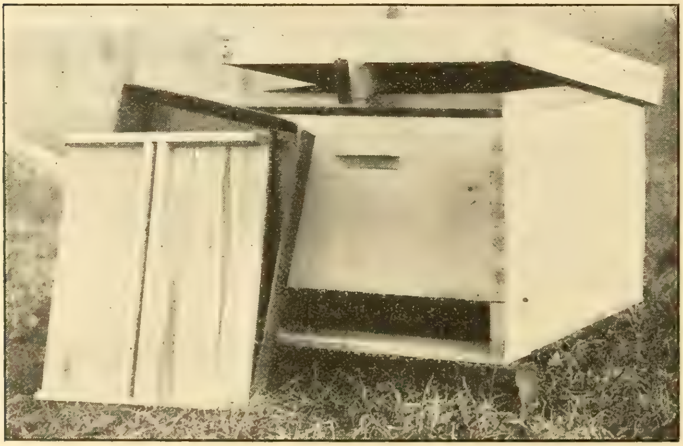


FIG. 3.—Feeder and float entirely removed, revealing the deep space under bottom-bars.

amount of feed into the funnel to which it is attached. Fig. 4 shows the float used as an alighting-board. It rests against the pan, which has been inverted, and now performs the function of the bottom racks used by Dr. Miller to prevent comb-building down from the bottom-bars. Notice there is abundant ventilation at the entrance. This year, some pans were inverted and shoved back until about two inches were left protruding in front for alighting-places. No comb was built down at the back. This was a poor season, however.

In Fig. 3 is shown the space which can be secured under the frames for wintering, if desired. This photo also shows the under side of the float and the pan.

In wintering it is not necessary to remove the pan, as there is a deep space between bottom-bars and float. Even with the little board in place in front, as in No. 1, but with the notched piece removed, there is no danger of the entrance becoming clogged with dead bees.

For the timid, this entrance-block is a boon. In moving bees to the cellar or in taking them out, just shove the entrance-board in. In carrying bees in, it is sometimes necessary, after the hive is in its place, to send a puff of smoke in as the board is being drawn out.

The pan in the feeder described above cost me 12 cts. plus freight. It will hold about 25 pounds of feed.

Cadott, Wis.

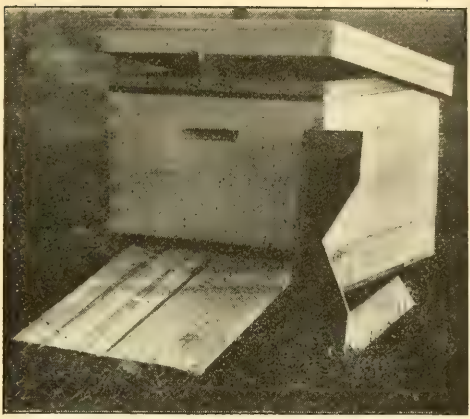


FIG. 4.—Float used as an alighting-board.

[We believe the feeder described by our correspondent is a good one, especially for feeding a large quantity of syrup at a time. We have used the division-board feeders considerably; but because of the fact that it is necessary to remove one or two combs to make room for them we have been using the Boardman entrance feeder rather more this year. Fig. 5 shows two of our men filling

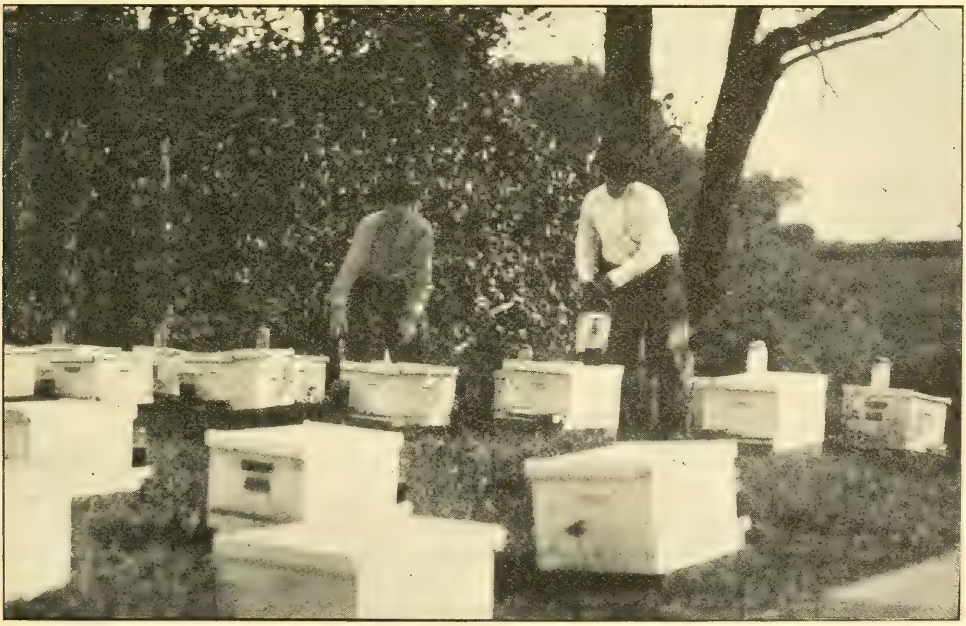


FIG. 5.—Filling Boardman entrance feeders.

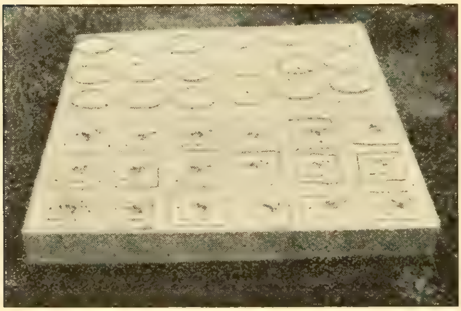
the jars. All the empty jars are first set on top of the hives. One man with the can of feed passes along the row, filling the jars, while another follows, quickly adjusting the caps and placing the jars in place in the blocks at the entrance. Even when robbing is bad, by working quickly we get into the yard and out again so quickly that robbers hardly know what we are doing. See editorial in the last issue.—Ed.]

SYSTEM IN PACKING AND LABELING HONEY-PACKAGES

BY R. F. HOLTERMANN

For some years it has been my business to label and pack a good many glass packages of honey—last year over 30,000 jars. All that can be said of this is that it is a large number in a small way. Having to do a good deal of this work I have made a practice of trying to find out the most expeditious way of doing it.

Our system is to use a metal board (we use the cover of a 12-frame hive) on which we put the paste with a flat fluid-brush. The paste needs to be just the proper consistency. We use a paste made by stirring "steco" in boiling water. It is a preparation which looks something like starch, and no doubt it has a germicide in it to prevent mildewing of the paste under the label. The labels are laid upon the pasted surface, and in that way receive their paste in just the right quantity. The paste must not be too thick and not too thin; it must also be put on the metal sheet in the right quantity, or the label will have too much paste or not enough. A little practice will soon make an intelligent person an expert in this matter.


Applying paste to labels for honey-bottles by placing them on a metal hive-cover brushed with paste of the right consistency.

The bottles are labeled before they are filled with honey, and the labels are picked from the pasted board as required. Three of us put up 87 cases of 24 each (2088 bottles), in one day, putting two labels on each bottle. We filled them with honey, putting screw caps on the glasses, and packing 2 dozen in a case. I did the filling, and the other two (one of them my younger son) did the labeling, putting on of screw caps and packing. The packing consisted of merely inserting the pasteboard partitions in the case and slipping in the jars.

Every thing was done according to a studied and planned system; every thing was at hand; and, so far as I could see, no unnecessary moves were made. The proper method is for No. 1 to label the bottles before they are filled; pass them to the right to No. 2, who fills them and passes them again to the right to No. 3, where the screw caps are put on and the bottles packed. System, and a right system, is a great thing in one's work. *Make no unnecessary moves.* How much energy is continually lost by making repeatedly unnecessary moves in work!

Brantford, Canada.

TREATMENT FOR FOUL BROOD SIMPLIFIED

BY D. E. LHOMMEDIEU

If one finds an occasional infected colony, all that is necessary to do is to shake the bees into a clean hive without even frames, leaving them there long enough to consume the honey that they carry with them. Then build them up at once by taking frames of brood, honey, and empty combs from strongest colonies in the yard, and every thing will go right along as though nothing had happened.

One of the secrets in having a shaken swarm stay lies in not moving or disturbing the hive in any way. Be careful also to see that the queen is not hurt, and that she goes into the hive, not under it. Furthermore, shake just enough honey from the combs on to the bees so that they will be extra well filled. This is important, as the bees are then more likely to stay and not swarm out. (Of course, this refers to shaking during a

A mail-carrier's apiary at Fall Creek, Wis. The bees are 50 feet from the road, and only 10 from the place where the owner hitches and unhitches every day, and yet there is never any trouble.

good honey-flow just before swarming time.

In shaking for the treatment of foul brood, as recommended above, the combs are all taken away, leaving the hive empty, while the bees use up what honey they have with them. Such combs as they start on the under side of the cover can be used for wax. Of the two colonies that I tried this treatment on last spring, the first was left thirty hours and the second forty-eight.

Scrape out the old hive that originally contained the diseased colony; scald it with water from a teakettle; burn the brood, melt the honey, boiling it fifteen minutes, and throw the frames and wax into a No. 9 boiler and cook them until the wax is off. When the frames are thoroughly dried, new starters can be put in, which may be used for hiving a swarm later on.

The brood can be melted up for wax, if one prefers; but it should not be melted with the honey, as the honey, after it has been thoroughly boiled for fifteen minutes, can be fed back for brood-rearing.

Colo, Iowa.

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A MAIL-CARRIER WHO IS ALSO A BEEKEEPER

BY CARL BAUMBACH

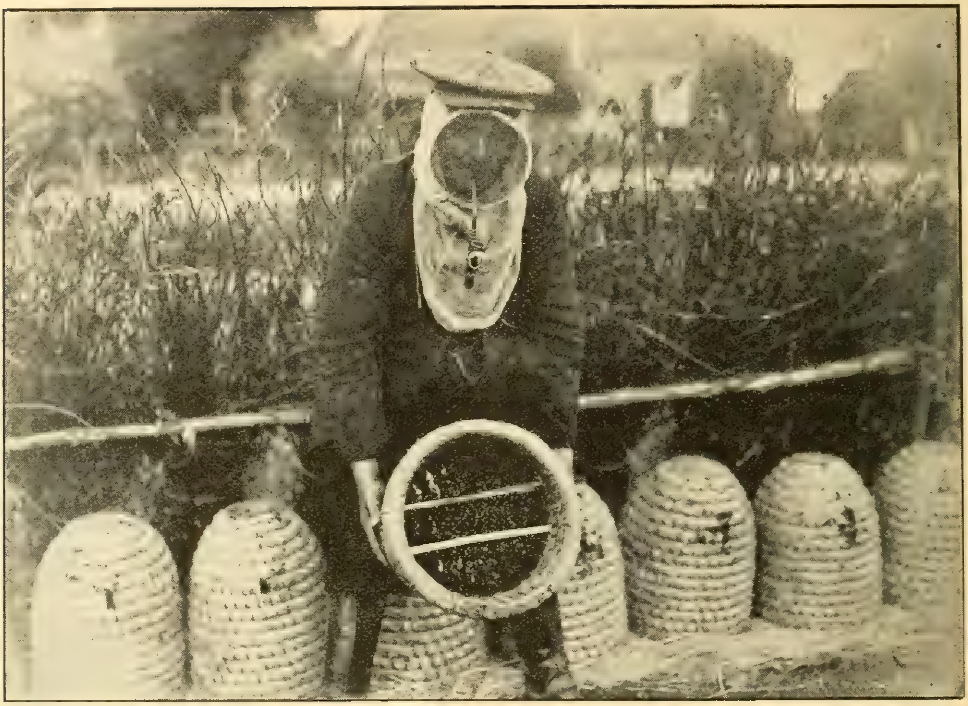
I am a rural-mail carrier, and I keep 24 colonies of bees as a side line. Four years ago I bought a colony and the A B C and X Y Z of Bee Culture. That year I took 103 pounds of comb honey. The bees wintered finely. During that winter I bought "Fifty Years Among the Bees," by Dr. Miller; "Alexander's Writings on Practical Bee Culture," and "Advanced Bee Culture," by W. Z. Hutchinson. I also subscribed for GLEANINGS, and studied every spare hour. I finally changed to the production of extracted honey instead of comb.

This last spring I followed the Alexander plan (queen-excluder) with twenty colonies, and the shaken-swarm plan with four, but found the latter plan to be far the better.

I transferred 24 very young larvæ from a select tested queen, that I bought, into prepared cell cups. I did not have any royal jelly; but the bees in the colony in which I placed them finished up nineteen fine cells.

The combs in the supers shown in the engraving were all drawn from foundation. I put the third super on July 7.

Last spring was wet and cold; but I had the hives wrapped in tar paper. This paper, after taking it off, I placed in front of the hive to keep the grass down. The plan



Interior of one of the straw skeps at the bee market at Veenendaal, Holland. Photographed by J. C. Bee Mason, London. Another picture of the bee market appears on our cover for this issue.

worked so well that I expect to take a long strip of paper next year and stretch it from one end of the row to the other to keep the grass down. The hives are on concrete blocks. I use a Ditmer bottom with a two-inch opening in both sides. These are extra good for ventilation.

Fall Creek, Wis.

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BEE-MARKET AT VEENENDAAL KLOMP, HOLLAND

BY HANS MATTHES

The village of Veenendaal is situated in the center of Holland, in the so-called "Gelderсche Valli," one of the most picturesque parts of the country. For hundreds of years this village has been noted for its market of swarms in straw skeps. Every year, on the second Tuesday of July, bee-farmers from all parts of the country come here, together with their wagons loaded with round skeps. Although the world over the modern wooden cases are in use, it is curious to note that, up to the present, the old models of round straw skeps are seen exclusively on the market at Veenendaal. The exhibition is held on a part of the heath, the so-called Nieuwe Weg, near an old church and a little tavern, the sign-board of which shows of old a round straw skep.

At this market the bee-farmers of the southern sandy parts of the country sell their stocks that they have wintered over to those living on the clay grounds. The farmers, with a view to early profit, obtain early swarms by heavy feeding, which are put together into new round skeps. These swarms being rather small, and with small combs, are brought to the market, where they are put on rows of straw behind hedges of faggots, as is seen in the engravings. Some two or three thousand swarms, or even more, come yearly to this market.

The principal buyers are the bee-farmers of the Veluwe, living near buckwheat-fields and the heath. When the season is favorable, and the buckwheat gives honey (which it does not do always), the skeps may be filled in two or three weeks. In case they are entirely filled up with buckwheat honey they are emptied before the heath begins to flower. If not, the partly filled skeps are brought to the heath in order to be completed with honey of the heath. The latter crop being over, the bees are generally killed, and the bee-farmers await the next market to buy new swarms.

Breukelen, Holland.

REQUEENING WITHOUT DEQUEENING

BY J. E. HAND

My thanks are due to Mr. Merwin, page 514, July 1, for a further explanation of his method of requeening without dequeening. Undoubtedly, caging the queen under the conditions he mentions will induce bees to finish grafted queen-cells; but how about the labor of hunting up the old queen? Will not such cells be built just as readily above a queen-excluder without caging the queen? and will not a young queen hatched above an excluder supersede the old queen upon the removal of the excluder? I cannot better express my views upon this subject than by quoting the following sentences from G. M. Doolittle's book on queen-rearing, page 158. Here is the quotation: "If you wish to supersede any queen in your yard on account of old age or for any other purpose, you have only to put on an upper story with a queen-excluding honey-board under it; place a frame of brood with a queen-cell upon it in this upper story; and after the young queen has hatched, withdraw the queen-excluder, and your old queen is superseded without your even having to find her," etc.

Again on page 96 in the same book Mr. Doolittle says, in part, "This is a singular freak, and one which I know not how to account for; but I do know that so far every virgin queen that has succeeded in getting from the upper story into the lower one has superseded the queen reigning there, whether that queen was old or young." While these sentences were written a quarter of a century ago, they are true to-day, and will remain true to the end of time, for the instinct of bees cannot change. I wish to emphasize this trait in bee nature, because I regard it as an important factor in the economical solution of two important problems, namely, "requeening without dequeening," and "swarm prevention." Concerning the former problem, however, little more can be said, for the virgin-queen method is undoubtedly the surest and most economical method known.

Lifting a comb from a frame hive at the bee market. Photographed by J. C. Bee Mason, London.

The object of requeening is a threefold one, namely, to introduce new blood and to have always a vigorous young queen in every colony; and last, but not least, to prevent swarming, while the object of doing it automatically, as just described, is to eliminate the labor of hunting queens in hives overflowing with bees. Furthermore, by requeening at the close of the season, as advocated by Mr. Merwin, the non-swarming feature is lost, for the principle is not effective except with young queens just beginning to lay, or with virgins. Since there is no safe method of requeening with laying queens without dequeening, it is advisable to rear queen-cells from a select breeder, and requeen by the virgin-queen method.

REQUEENING FOR SWARM PREVENTION.

In GLEANINGS, June 15, 1913, Dr. C. C. Miller is responsible for the statement that, if a colony that has prepared to swarm is made queenless for ten days, and given a young laying queen at the end of that period, after removing queen-cells at the beginning and close of that period, that colony will be a non-swarmer for that season. I quote these two eminent authorities because I have combined the Doolittle method of supersedure with Dr. Miller's method of swarm prevention by dequeening, thereby forming a combination of requeening and swarm prevention that eliminates the labor of requeening, removing queen-cells, etc. Here is the method: Remove all brood-combs containing queen-cells from the colony that is preparing to swarm, and substitute dummies. Place the combs having queen-cells in a separate hive close beside the colony, without shaking the combs. When the first young queen hatches, remove the remaining cells, also any that may be in the colony, and carefully replace the combs without spreading them, or the bees including the young queen may be shaken from the combs and run in followed by a few puffs of smoke.

The reigning queen will be executed without parley or delay. This stops egg-laying for approximately ten days without rendering the colony queenless. Meantime the young queen will have begun to lay, and that colony is a non-swarmer, and will work with a vim equal to a newly hived swarm. It is thus that colonies are requeened and swarming prevented with little manipulation, and without seeing either queen except the dead one that will be dragged out. With my limited experience with this method, I am not sure that it is necessary to wait until queen-cells are started; if not, the method can be further simplified. We had a colony the present season, with the swarming mania so highly developed that they absolutely refused to yield to any treatment. We took away all their brood and substituted sheets of foundation, and still they swarmed with an egg in a queen-cell; but the virgin-queen method settled the fracas, and they rolled up a fine crop of surplus honey. While this method gives promise of good results it will require another season to develop the principle fully.

Birmingham, Ohio.

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SOME COMMENTS ON RECENT ARTICLES ON WINTERING

R. F. HOLTERMANN

The September 1st number contains some very interesting information in connection with the wintering of bees. The article by J. E. Hand has some points which deserve a little further attention. His remarks in connection with the tendency to winter bees outdoors are perfectly correct. That it is a movement in the right direction I also believe, providing proper winter stores are provided. When we come to the question of the best winter stores, Mr. Hand and I are as far apart as it is possible for us to be. He writes, "Bees wintered out in the open in properly protected hives with good stores of pure honey (not sugar syrup), will usually be healthy, strong, and vigorous in spring."

I feel sure that the very best winter stores obtainable is sugar syrup. Clover honey may be its equal, but nothing is its superior. So strongly do I feel about this that at this date of writing, Sept. 22, I am withholding winter feeding because I would sooner have the bees consume natural stores now instead of using, during the autumn and perhaps very early winter, the sugar-syrup stores.

In every case where I have had heavy winter losses I have, to my satisfaction, been able to trace that loss back to the use of inferior natural stores as food by the bees. What makes natural stores unsafe, where the bees are confined to the hive for months at a time, is the uncertainty of their composition. What makes artificial winter stores better is the certainty and uniformity of these stores if the best of granulated sugar is used.

VITALITY.

Mr. Hand states, "I am a firm believer in the immunity from such diseases as European foul brood, paralysis, spring dwindling, dysentery, and kindred diseases, by maintaining sanitary wintering conditions with respect to pure food in abundance, and suitable protection out in the open."

While there undoubtedly is much in this I know that American foul brood may be found in colonies of bees in the very best of condition so far as outward evidence goes; and I venture to say that foul-broody honey fed to colonies of varying strength will show no difference in results. Now, I am not going to deny that, to a certain extent, there may be a constitutional difference in bees which makes them more or less immune to germs of disease; but this is not designated, or, rather, controlled by stores, wintering, etc.

SIZE OF BROOD-CHAMBER.

Mr. Hand states, "Eight frames is the maximum capacity for best results, and six is nearer correct."

If a twelve-frame colony of bees has been able to cover the combs of a hive having three or four upper stories—yes, I will say two upper stories—eight combs will not be sufficient for their late autumn and winter requirements; yet I would say the surest and best results are to be obtained by contracting the brood-chamber so the bees will cover their winter stores and the combs of the hive.

UPWARD VENTILATION AND HIVES.

When we touch upon the question of what the instinct of the bee is, we must remember that the honeybee is not a native of northern countries, and the instinct of propolizing the hive may be more to keep moisture out than for any other purpose, and that in any case instinct is of value only in so far as it is in natural environments.

As to the hive being suitable for both summer and winter, in my estimation the requirements would be of such a nature that it would add too much to the cost and weight of the hive.

CELLAR WINTERING.

While largely agreeing with Mr. Hand as to the inadvisability of cellar wintering, we must remember that, to keep bees where there is a "compulsory retention of fecal matter during long confinement," is a "violation of nature's laws," be that outside or inside. He states that "bees love to revel in God's pure air and bright sunshine, hence an enforced confinement for four months in total darkness . . . is not conducive to health."

Bees do come out to pure air and bright sunshine; but give them a place secluded with a small entrance, or ask them to found a home in the open, even if not exposed to rain, and we pretty well know what they will choose.

FEEDING SUGAR SYRUP.

Let us take a colony which has come through a season where nectar was scarce, and the bees have gathered insufficient stores for winter, and they ripen sugar syrup instead of honey, why has that colony suffered any more from storing syrup? I do not think it has. The great thing is to give the feed so that it will all be in the comb in 24 hours. Give it as Mr. Hand states, in the proportion of two of sugar to one of water (I would even say 2¼ of sugar to one of water). Feed it when the weather is cool. Feeding honey excites bees more than feeding sugar syrup, and therefore there should be less waste in feeding sugar syrup. Sugar syrup should be better for winter, and honey better for spring. Last spring I was surprised to find how few colonies reared brood before the bees began to gather pollen. The most of the colonies had not been fed any sugar syrup the previous fall, and I had introduced 400 Italian queens the previous fall. There undoubtedly is something about honey which excites and stimulates the bees more than syrup. If this is not believed, try it in robbing time; try it when you feed the bees; try it to induce brood-rearing, and you will be satisfied. This is one reason why I like sugar syrup as a winter food.

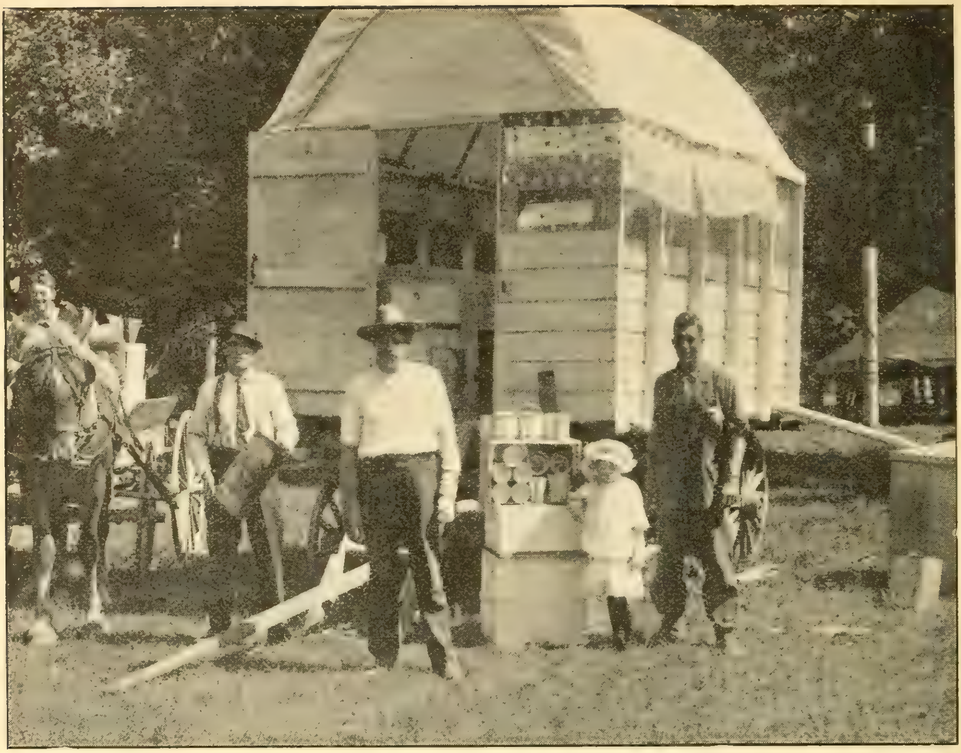
Brantford, Canada.

ALFALFA-GROWING IN THREE STATES

BY O. G. ALLEN

Some time ago there was a request for information in reference to the time to cut alfalfa. I have had 15 years' experience in the alfalfa of eastern Oregon, Washington, and Idaho.

The proper time to cut the alfalfa in the West is when the shoots of the following crop are low enough to be missed by the sickle. I paid no attention to the stage of bloom; but ordinarily the first crop should be cut when one-eighth in bloom. The second when about half in bloom; the third



Portable extracting-house used by A. G. Anderson, Beaver, Utah.

crop should be let go until all is in bloom. If the third crop is cut too soon it will be washy, and not good hay. From tests I have found that the hay begins to lose in feeding and fattening properties after it has passed the half-bloom stage.

Another great mistake alfalfa-raisers make is to let their hay get too dry before raking and stacking, thereby losing a large per cent of the leaves, which contain the large per cent of food value. I do not know it all when it comes to the care of alfalfa; but I learned of a good many instances where much money and time could have been saved in caring for the crop.

When it comes to stacking hay, the one who uses a wagon is much behind the times. I use frames and nets with a swinging-arm derrick which put the hay up in better shape than any rig I have ever used. By using buck-rakes and a Jackson or Fleming stacker, you can put up more hay with the same number of men; but the quality of the hay will be in favor of the frame and nets. The frame is built just like a barn-door, of 1 x 6 boards 14 or 16 ft. long and 8 ft. wide. I crossed the boards at each end with 2x4's, and 2 1 x 6 through the cleats. At each end is a staff to bolt the net rings—a cable and ring to hitch to completes the frame. One will readily see that the frame will ride on top of the stubble, and go right across ditches without any trouble whatever.

Pendleton, Oregon.

A PORTABLE EXTRACTING-OUTFIT

BY A. G. ANDERSON

The accompanying engraving shows my portable extracting-outfit. The honey-house, as shown, is on a wagon with springs to make the riding easy. The room is 8 x 12 feet, inside measurement, which gives plenty of space for extracting. I keep a two-ton honey-tank at each yard, which is stationary. The house remains on the wagon all the time during the honey season (this picture was taken when we were extracting for the public during our "home-coming week").

On the wagon is my son Claud, who is now one of my general hands. The one at the left of those standing is Charlie Keil, my helper at general work; next, myself; and then Otto Baty from Highgrove, Cal., my foreman, with my little daughter of six, Bonny Anderson, between. She always likes to be with me when I am among the bees.

The other picture shows Miss Novella Turnbow, my sister-in-law, and my daughter, Geneva, who have done all of my uncapping for a number of years. I don't believe there are two men in the West who can uncap more honey in a day nor keep a neater honey-house. They frequently uncap two tons of honey in a day.

Beaver, Utah.

CUCUMBER-SPRAYING THAT IS HARMLESS TO BEES

BY STEVEN T. BYINGTON

One hears more about the evils of reckless spraying than about the methods by which the necessary spraying can be done so as to be harmless. Cucumbers, and many sorts of cantaloup, need to be sprayed with a copper spray for protection against disease. They do not, in my garden at least, need any arsenical spray for protection against biting insects. They sometimes (not every year) need a contact insecticide, such as soap suds, to kill off the plant-lice; but that is not dangerous to any bees except those that are on the vines at the very moment of spraying. I do not know if it is dangerous, even to those. But it is very common to spray them with "pyrox," a mixture of arsenical and copper spray, because the arsenate helps the copper to stick to the leaves, and because pyrox is skillfully made to be as wholesome as possible for the vine, and because it is considered good policy to do whatever will kill bugs at any time. I notice just now that an agricultural paper which always recommends the liberal use of pyrox is complaining that this year there were so few bees that the cucumber crop was short.

This season I have been trying the experiment of spraying late in the evening with the ammoniacal copper-carbonate solution. It has seemed to work well except on some vines which, in my judgment, had the disease from the start because they were not sprayed soon enough. (You know spraying can never cure this disease—only prevent it.) I doubt if this solution, in the very small quantity that is used, would kill a bee or larva, even if nectar were taken from a freshly sprayed flower; and by spraying late at night I feel sure that by morning the copper will all be beyond a bee's reach, even in the few flowers that have not wilted during the night. It will, I am sure, dry on to the leaves firmly, even while the dew is falling, so long as it is not rained on in the first half-hour; hence it can be used at night and in other non-drying weather. And it is so cleanly that washing it out of a brass sprayer after using is a mere matter of form. Some say it burns the leaves. Perhaps my using it in the dew protects me against that—at least I have no such complaint to make.

To make this solution, get from the druggist a pint or pound of extra-strong ammonia (such as you cannot buy at the grocery), in a glass-stoppered bottle marked "26° B," and an ounce and three-quarters

Misses Novella Turnbow and Geneva Anderson, who frequently uncap two tons of honey in a day.

of carbonate of copper. This 26° Baumé ammonia will squirt when the glass stopper is first taken out; therefore do not have your eye over it or you will wish you were only stung up by bees instead. Probably, to get the stopper out, you will have to take a twist of paper or cloth wet in hot water and hold it around the neck of the bottle a minute or so, which will doubtless make the squirt still more certain to come. When you get it open, put in the copper and stir with a wire or stick. It will dissolve as easily as salt in water. Use one part of this solution to 270 of water. If you work on a very small scale, use two level teaspoonfuls to a quart, or two tablespoonfuls to a gallon. The stock solution will keep perfectly if you keep it in a cool place in the glass-stoppered bottle in which the ammonia was bought. Don't be scared by reading that it won't keep.

When one needs to use an arsenical spray on plants which he does not need to have the bees visiting at present, as in the case of those Colorado orchardists who sprayed the trees under which the clover was growing, I think he ought to mix with the spray enough tobacco tea (or any strong-smelling nicotine insecticide) to make the sprayed foliage smell of tobacco till the sprayed flowers have had time to fade. That will warn off the bees, or I am mistaken. And at the same time it will, if strong enough, kill the plant-lice on the sprayed trees.

I was surprised to read about bees gathering bright-green pollen from swamp-milkweed. I thought milkweed pollen grew in such shape as not to be useful to bees. Is it certain that it was milkweed and not some other milky-juiced plant such as dogbane? One sort of dogbane is called "honey-plant" according to the botany.

Ballard Vale, Mass.

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NOTES FROM GERMANY

Imbedding Foundation and Fastening it in Frames

BY J. E. HEBERLE, B. S.

The article by H. H. Root in the Nov. 15th issue, page 799, is very interesting. The illustrations are so clear, that a beekeeper who has had only a few lessons in English may easily understand it.

I use no grooves with wedges to hold the foundation. I solder it on the top-bar with melted wax. If the wax is warm enough it will hold as much weight as the foundation will stand, but will not stick well if it is too cool. It should be just warm enough so that it won't melt the foundation.

I use a board about ¼ inch smaller than the inside of the frame, and thick enough to hold the foundation in the middle of the top-bar. On the two long sides of the board is nailed a thin lath a little longer than the frame, and extending about half an inch over the sides. The foundation is laid on the board and the wired frame upon it, care being taken that the sheet touch the top-bar the entire length. Board and frame are firmly held in the left hand with the top-bar down, and so inclined that the melted wax poured in the upper corner will run down rapidly. It is better not to pour too much wax on one place as there is danger of the foundation melting at that point. Keep the wax constantly pouring out in a thin stream. We have a handy alcohol-lamp, with a spoon that can be removed, which is used to melt and pour the wax on the top-bar. When the spoon is removed, the wire-imbedder may be heated on the flame.

Alcohol for industrial purposes is very cheap—about 35 cts. a gallon—while that for consumption costs about $2.70 per gallon. These are retail prices. The strength of each is about 96 per cent. The only difference is that, to the alcohol for burning, etc., a small quantity of piridine is added to make it unfit for consumption. It makes a good heat, and is clean. Alcohol is used for burning in the kitchen stove during the summer months.

After one side of the foundation is fastened, the board is removed and the frame is held in the left hand in such a position that with the right hand the melted wax can be poured on as before. The lamp is allowed to burn, and the flame is regulated to suit. Lamp and spoon are used as one piece. The spoon is removed when wiring foundation, and the imbedder put in its place. The one I use has V-shaped grooves in the teeth so the wheel can't slip so readily. Between the handle and the center of the wheel, there is an extra-heavy metal part that helps to keep the teeth at the desired temperature.

WATER FOR BEES.

German bee-journals mention the necessity of providing water for bees where nature does not supply it near the apiary. A dish with something in it, such as small laths, excelsior, straw, etc., to prevent the bees from drowning, will suffice. A couple of barrels with arrangements for continual drip (a spigot (cock) or siphon) would be convenient for large apiaries such as you have in America. The barrels should stand on a foundation one and a half or two feet high. The drip should fall on a slanting board, with rills, or covered with gunny-sacks, etc.

When the bees have young brood they need much water. A large force of bees is needed in the apiary to carry water. In early spring the weather often changes suddenly and many water-carriers cannot return if they have to go a considerable distance. We often have very bad weather for several days in succession. It is not only the loss when bees are more valuable than at any other time, but the extra work saved to the bees would pay for the trouble of providing water in one or more places in the apiary.

Water at about 70 to 80 degrees F. is recommended. A beekeeper can readily make an arrangement for warming it. A kerosene-lamp will supply the heat very cheaply. If desired I will describe in detail one I have made.

OBSERVATION STATIONS.

In many of the provinces observation stations have been established. A hive on scales is weighed once or twice daily during a part of the year. The number of days and hours during which the bees fly, the amount of rainfall, prevailing winds, etc., are noted. These observations are sent monthly to the chief of observers, who tabulates the results and publishes them with comments. Bavaria has 31 such volunteer observers in the various parts of the kingdom. Switzerland has 39. The chief, Mr. Juestrich, in his annual report in the *Schweizerische Bienenzeitung* states that the 39 stations have 52 hives on scales, 44 of these having frames in an upright position, and 8 in the same way that you have yours. The top-bar is longer than the ends.

The *average* monthly consumption per colony was, November, 710 gr., 1.6 lbs.; December, 688 gr., 1.5 lbs.; January, 794 gr., 1¾ lbs. The average consumption in ten years was, for November, 741 gr.; December, 888 gr.; January, 956 gr. In Bavaria the average is given for 1911; November, 595 gr.; December, 446 gr.; in 1913, November, 371 gr.; December, 691 gr.

In April the brood was measured, 14 colonies showing an average of 34 cm^2, or about 544 square inches per colony.

Markt Oberdorf, Bavaria, March 16.

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HYBRIDS VS. PURE ITALIANS FOR HONEY

BY DR. C. C. MILLER

Dr. C. C. Miller:—I certainly agree with all you have written in favor of the black and hybrid race of bees being superior for comb honey; and with my experience I am unable to see why you have changed over to the Italians. Some of the poor seasons the blacks have more than doubled in the amount of comb honey produced. I have been a close observer of the workings of the two races, and in every instance the dark race leads the yellow in the production of comb honey. In working for extracted honey I do not see any difference in the average. With this experience I am still partial to the dark race; but as the whole fraternity seem to differ I am still trying to secure a race or strain of Italians that will do what is claimed for them, or at least as well as the blacks. You seem to be satisfied with your present line of Italian stock. The question is, where did you secure the queens that do so well for you at this time? I desire to purchase a few queens this season, and am at a loss to know where to get them. All queens that I have purchased of late years have proven to be very much inferior to what I already had, and in some instances *very inferior*. Some that I have received produced bees that are the most determined robbers that ever inhabited a hive. Others will do nothing in comb honey. Can you give me the address of one or more breeders whose stock you know is good?

S. COULTHARD.

Thompsonville, Mich., April 17.

It is not the easiest thing to make entirely clear my view with regard to blacks, Italians, and their crosses. It is true that I have had hybrids which did so well that Italians I obtained did not equal them in storing. From this some have concluded that I believe black blood better than Italian. That inference is warranted only on the ground that *the whole* of what I said was not taken into consideration. Let me try to make the matter clear.

The hybrids I had, which were better than Italians, had been bred up through years of careful selection. As I have said more than once, if I had taken the same pains in selecting from pure Italian stock, it is entirely possible that I might have had Italians still better than my hybrids. It is well known that a first cross is likely to have more vigor than either parent of pure blood. So I bred from my best stores, which were hybrids. It is also known (although I didn't know it in my early beekeeping days) that following up with crosses is not likely to result so well as to stick to pure blood with its more fixed character.

So I don't think it's fair to compare Italians with hybrids that I had polished up to shine their brightest. A better way is to compare pure Italians with pure blacks. It is not an easy thing to do that now, at least for me, for I have not seen a colony of pure blacks in many a year. But years ago there was no difficulty on that score. I began with blacks of the purest character, and there was no danger of contamination, for only blacks surrounded me. My first Italian stock was from Mrs. Ellen S. Tupper, Washington, Iowa, afterward for a time editress of *The American Bee Journal.* Afterward I got Italian colonies from Adam Grimm, Jefferson, Wis., later known as the man who started a bank with his bee-money. That gave me a chance to compare blacks with Italians. The Italians were away and away ahead. That's one of the things I know, and know for certain.

Having introduced Italian blood, in my ignorance I did what many another is doing to-day—left the bees to their own devices in the matter of breeding. I did, however, get an imported queen from Italy now and then, and afterward began building up the strain of hybrids that did so well.

Now please let me get myself on record straight. I do *not believe* blacks are better than hybrids, and for permanent results I doubt the wisdom of getting in the least taint of black blood. If I had it to do over again (and this is the part of what I have said that some overlook) I would stick to the purest Italian blood every time.

But, having established a strain that was ahead of any thing else I knew of, why did I make so radical a change as to weed out all the black blood, or nearly all? Just one thing made me change. In making selection for breeding I had ignored every thing but the one factor—the gift of storing—and along with that I had developed a strain so full of viciousness that they seemed to conclude that they could run the place alone, and had decided that they would run off the place every thing not provided with six legs. My assistant protested bitterly that, after having labored for years to build up a strain that would do such good work, I should throw it all away and begin with—I didn't know what. But I said I'd rather have less honey and not be obliged to move. So for some years the weeding process has been going on, and now I have mostly Italians.

I got stock from The A. I. Root Co., from Doolittle, and from Italy, and I suppose the stock I now have is a blend. I cannot answer the question where to get best Italians. For all I know there are many who have excellent stock.

I may be asked how my present compares with my previous stock. I don't know. It's hard to make a comparison between two things several miles or several years apart. But I've kept up breeding from the best, and I think I have some pretty good workers. And it may be well to say that last year I seemed to get best results from the yellower bees. But it isn't certain that will be so next year.

Just one thing I want to urge. If you are not satisfied with your stock, get the best you can, and count that only a beginning; *the* important thing is to continue persistently *breeding from the best.*

Marengo, Ill.

ANOTHER GREAT SWAMP BEE PASTURE

BY G. W. HAINES

The editorial, page 570, Aug. 1, on the big swamp or marsh land gives a good description of a large swamp near my apiary, only it is ten miles long and from two to five miles wide. It is so marshy for a distance of eight miles that a team cannot cross except in the winter on the ice. A large creek runs through the center the whole length, and this affords good fishing. In early spring it overflows and makes a lake as the water goes down. It is great bee pasture. In early spring many wild flowers and acres of willow start the bees breeding in fine shape. During clover bloom they do not seem to work that way. After clover bloom there is a line of bees that way until frost cuts off every thing.

You give a good description of all honey-plants found here; but you do not brag enough of the button-bush, as you call it. We call it here "button-ball," as the bloom and seed are as round as a ball. It comes in bloom in August, with buckwheat. The bees start for the buckwheat-fields in all directions in early morning. At about 11 o'clock they usually leave the buckwheat and start for the big swamp. On the button-ball they seem to work all day. It is a sight to see the whole apiary of 225 colonies working in one direction.

A man stopped one day and told me all the bees I had were running away down in the big swamp. On several occasions I have seen bees that I was satisfied were mine working on the button-ball seven miles from home, with many square miles of fine bloom near by. This honey goes in with the buckwheat, and gives it a fine flavor. I believe bees go further for honey than many think, with many flowers nearer by.

I am located on the west of this swamp, E. M. Lawrence is on the north, and Percy Orton on the East, at Northampton, each with a large apiary, and I am sure they will both back up all you say, and more too, about swamp land.

Mayfield, Mass.

MOODS OF BEES VARY

BY J. D. FOOSHE

I note that the smoke method of introducing queens is not always successful. I have read with interest the many claims for this method. I am not surprised to see that, after having been tested a year or more, it is not always successful. I have no doubt that veteran beekeepers have tried the same plan oftentimes before, but decided that it was not always successful.

Bees are the most erratic little creatures in their temperament of any thing I have ever had any thing to do with. When I worked with bees regularly and reared queens daily, and was constantly changing queens or introducing queens that came through the mail, I had some notable experiences. In the first place, bees are so susceptible to climatic influences which create abnormal conditions inside their hive that they are seldom in the same mood, so to speak. To-day you may raise the top of a hive and pull out all the frames, and not use a particle of smoke; but to-morrow, look out. There might have been an east wind or a slight sprinkle of rain during the night, and the same colony that let you handle them the day before without smoke will hardly let you enter the next day without drastic measures; so, oftentimes, this condition prevails at the time a queen is to be introduced. If in a normal condition, and honey coming in, almost any of the tried methods of introducing will succeed; but if their temperament has been affected, not so.

I have oftentimes used smoke successfully; but having frequently failed with it I stick to the cage plan.

Virgin queens several days old can often be successfully introduced by any of the common plans, provided conditions are right in the hive. I remember away back into the 70's I received by mail a queen that I prized very highly. I introduced her to a strong colony that I knew positively to be queenless, and in a couple of days I was investigating, and found my queen in a ball of bees. I smoked them and released her and put her back in the cage, and this process of recaging and balling went on for a week, and I deliberately got some chloroform and put them all apparently dead on the bottom-board, and turned the queen loose; and when they awoke from their stupor they seemed to be glad to accept her royalty, and she was soon laying. Any queen that has ever been balled, whether laying or virgin, is harder to introduce than if never antagonized, even though she be changed to another queenless colony.

In all my experience I don't know of any thing that is so changeable in physical condition as the bee.

Augusta, Ga.

LEARNED BY EXPERIENCE

BY E. S. MILLER

In regard to the metal-top hive-covers, I have tried many kinds and find that with rims ⅝ inch thick they are by far the best cover. The metal should be well painted with white lead and oil, otherwise they will rust in a few years.

METAL-BOUND SUPER-COVERS WARP.

The metal-bound super-covers are less satisfactory, for the reason that they warp; the changing humidity causes the cracks between the boards to widen, and, in prying off the cover, the metal becomes bent, causing the boards to curl up at the edges. I have used them several years, and find that bee-escape boards used for this purpose are much superior. The opening, which may be covered ordinarily with a piece of section, is also useful in many ways. When feeding in late fall or early spring it is not necessary to loosen the whole cover, thus exposing the bees to drafts. In hot weather the openings may be used for ventilation; and in taking off comb honey the tins can easily be removed without disturbing the bees.

A pretty good feeder can be made by inverting a friction top pail over a pie-tin. Fill the pail, and cover it with a piece of cheese-cloth and the tin before inverting.

IMPORTANCE OF HEATING AND STRAINING HONEY.

Too many beemen practice drawing honey directly from the extractor into cans to be sold to the consumer, without heating or passing through a settling-tank. A little foam or a dead bee now and then will frighten away many a good customer.

I had an oven made somewhat similar to that described by Mr. Pouder in GLEANINGS about two years ago, for liquefying honey in 60-lb. cans. Two oven gas-burners were installed; but I find one to be sufficient, and it must be turned very low. I find, also, that if the cans are inverted the honey runs out while still partly granulated, and must be subjected to further heating if it is to be strained or passed through the settling-tank. If the cans are not inverted, the honey at the top of the can becomes too hot, while at the bottom it remains unmelted for a long time.

Twelve hours or more are required to liquefy six 60-lb. cans of candied honey in this way when the thermometer at the top registers 160 degrees.

I figure that it is worth about three cents per pound to furnish pails, shipping-cases, and labor in liquefying and putting up honey in five and ten pound pails. If I am right, then when candied honey is selling for nine cents per pound in five-gallon cans, liquid honey should be worth about twelve cents when in pails ready for the consumer.

It seems that around Chicago, at least, there are quite a number of canvassers who have discovered that there is a profit in buying extracted honey at wholesale prices or less, and selling at twenty cents or more per pound to the consumer. In a way these people are doing good by creating a market and in bringing a wholesome food to people, many of whom never before tasted honey; and yet it does not seem quite the proper thing for them to receive more for selling than the beekeeper gets for producing.

The next step for the producer will be to induce retail grocers to handle honey in pails. Their margin of profits should be considerably less. I have tried selling in this way in two or three towns, and thus far it has proved successful.

MOISTURE PASSING THROUGH THE HIVE WALL.

It is capillary action that causes the passage of moisture through the sides of an unpainted hive. Of course, no appreciable amount of impure air will pass out that way. But how much moisture under ordinary conditions? Will some one determine this?

Valparaiso, Ind.

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NOTES FROM HOOSIERDOM

BY S. H. BURTON

Three supers full of paper-white honey in 27 days from bluevine, and the bees loafing for want of space, is the record for one colony in the White River bottom.

We find that introducing queens by the smoke method is successful if *plenty of smoke is used.* Three attempts at introducing queens by running them in at the entrance with a "few puffs of smoke" resulted in a failure in each instance. The bees promptly balled the queen. We rescued the queens, fired up the smoker, and gave it to them from above strong enough to send them scurrying out at the entrance, and boiling over the tops of the frames. The queens were again released, cover replaced, and some more smoke driven in at the entrance. An examination 24 hours later proved that "all was quiet along the Potomac."

Cool nights and cloudy days have prevailed during the last fortnight, and bees are not finishing up all sections in top super. We shall discontinue tiering up all but the strongest colonies.

The fall flow from goldenrod and white aster opened up with a rush Sept. 15. Bees are crowding in the supers, and we expect to take off some golden honey that will taste fine on hot biscuits. In mowing weeds along the fence and in the pastures I always instruct my men to spare the goldenrod. By practicing this method for several years I have a border of goldenrod around my farm which not only looks attractive but furnishes good bee pasture. This morning I counted nine bees on a single clump gathering in the nectar.

A good local demand prevails for new honey, and we are selling more to private consumers than ever before. The high price of sugar has stimulated the demand for honey, and we anticipate no trouble in disposing of our entire crop locally. Talk honey to your banker, your baker, your candlestick maker; tell them what a fine product you are harvesting; quote them the same price that you would quote your jobber or wholesaler, and see how quick you can move the crop. We carry a small advertisement in the local dailies which reads, "From producer to consumer. Save the middleman's profit," and quote it at 16 2-3 cts. per *section*, or six *sections* for $1.00. We have all the orders we can fill. Honey retails at our local groceries from 20 to 23 cts. per section; but the grocer or dealer will not pay the producer any such price. Why not give the consumer the wholesale price and stimulate the demand?

Washington, Ind., Sept. 2.

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THE SIZE OF THE BROOD-CHAMBER REQUIRED DEPENDS ON THE LOCALITY

The Eight-frame Brood-chamber Recommended with the Addition of a Half-depth Super when the Single-story is Too Small

BY J. J. WILDER

This great question that is being so much agitated is already settled by many of us —we have what we want, and we know it to be the best for us. But there are many coming into our ranks who do not know what to use, and there are also some who have already entered who are not pleased with the size of brood-chambers they have adopted, or do not know what size to adopt, and they are depending on us to enlighten them on this subject.

There has been so much said about the larger brood-chambers, the ten and twelve frame size, that beekeepers who have the eight-frame size have begun to believe that they haven't the thing; and the question is, "Shall I change?"

WHATEVER IS USED FOR A BROOD-CHAMBER MUST BE WELL OCCUPIED.

Let me state here that whatever is used for a brood-chamber must be well occupied by the queen during the honey-flow for best results in the supers above; for if there is a comb or more on either side of the brood-nest that the queen does not occupy, the result is poorer work in the supers. So the brood-chamber must be the right size. Better have it a little too small than too large.

The ideal brood-chamber, as I see it, is the regular eight-frame full depth body. Now, in sections where in certain seasons of the year brood-rearing gets at such a pitch that additional room is needed just for a short time, a shallow extracting-super of the regular size containing ready-built combs can be placed on top which will catch the over-production of brood; and *as soon as well occupied it can be placed under the regular brood-body* and storing room added. The result will be a greater harvest, especially in comb-honey production, than with any other arrangement for a brood-nest.

What about this super used as additional brood-chamber? The queen will occupy this more or less during the time she is laying most eggs; but as soon as this is over she ceases to occupy it, and confines herself to the regular brood-chamber, and the bees will store but little honey, if any, in it where it is, if they have plenty of storing room above; and if there is any honey in it, it is consumed or carried above long before the bees are ready to be put in wintering quarters. It can be removed at the close of the season, or removed from the bottom and placed on top of the regular brood-nest as soon as the crop of honey is removed. Should there be a light flow toward the end of the season, the bees will store some honey there for winter use.

There is no danger of swarming as long as this super of combs is just above the brood-nest; and if placed below just as soon as well occupied, and the whole hive elevated from the bottom-board by means of two ⅞-square strips cut as long as the hive is long, placed on either side, you have as near a non-swarming colony as can be made by arrangement. Besides, if you want to examine the brood-nest, all that is necessary is to lift the body up a little from the super, and a glance up and down will reveal the conditions. By this plan the lightning operator can care for hundreds of colonies, so far as swarming is concerned.

If increase is desired, the arrangement is just the thing. As soon as most of the brood in the shallow combs is sealed, see that the queen is not on these combs, and then set the super off on the new stand, and give it a queen-cell. Or, let the bees build cells and raise a queen if the weather is warm.

I am speaking from the standpoint of a Southern apiarist, and for the South. I have had almost unlimited experience, having bees scattered along in different sections for over 200 miles, producing and putting on the market each year over 15 different kinds or flavors of honey. So I have been in almost all kinds of locations.

I have 15 apiaries in sections where we need additional room to the regular eight-frame hive-body for a brood-nest. I also have 20 apiaries where the eight-frame body by itself is large enough for a brood-chamber, and 20 more where the eight-frame body is too large for a brood-chamber at any time of the year. The result is, I am having to use only the shallow super for the regular brood-chamber, because I can produce a third more honey by doing so. The full-depth size is too much of a storing place to get much honey in the comb-honey supers. There is one bad feature about these single shallow supers as brood-nests; and that is, the bees store all honey in the supers above; and when they are removed there is sometimes a shortage of winter stores. However, this shortage is supplied with shallow frames of honey from some colonies that we have to store in them to be used for that purpose.

It may startle some of my readers to know that such conditions exist here—that a single shallow extracting-super body is sufficiently large for a brood-chamber in the average location in the great Southeast.

I have visited a great number of apiaries in the extreme portions of our country, the bees having been brought there from the North by Northern people in large hives. Lifting out the outside combs in these large brood-chambers, I find the comb contains no honey, and that they never have been occupied by the queen. In most cases the moths have ruined them. There is usually a small brood-nest right in the middle, the bees, perhaps, storing just above it, while all around is unoccupied comb being ruined by moths. It is needless to state that the industry has gone down under such conditions, when, if the proper size of brood-chambers had been used, it would have been different.

Cordele, Ga.

[Our correspondent, in this article, virtually takes the position that the size of the brood-nest depends upon the locality. Supposing, for the sake of argument, that the 15 apiaries mentioned could suddenly occupy either of the other two localities, would the eight-frame 1½-story brood-chamber, with the same colonies, soon be too large? With the same management and the same prolific queens, it is indeed "startling" that there should be such a difference in the size of the brood-nests as to require almost three times as large a brood-chamber in the first locality mentioned by our correspondent as in the last locality. If Mr. Dadant, with his extra deep hives, and Mr. Holtermann, with his twelve-frame hives, were to move their bees into this last locality, would they be obliged to adopt a single eight-frame half-depth super for a brood-chamber in order to succeed?—Ed.]

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A TON AND A HALF OF SUGAR AT WAR PRICES

BY ILA K. MICHENER

The editorial on page 659, Sept. 1, "Is sugar too expensive to feed?" etc., I have read with great interest. I have lived near a large marsh all my days till this year. I'm in my sixty-ninth year, and I have never found the honey gathered from goldenrod and the asters good for wintering bees, for the reason, I suppose, they never get it well ripened in this locality.

Neither is boiled honey good for wintering bees, for it is changed so much that bees will get dysentery from it before spring as well as they will from the late-gathered honey.

My bees where I have them now, near Fenwick, gathered about half a crop of clover honey; and although buckwheat was abundant it rained so much while it was in bloom they gathered very little honey from it.

We have had about twelve days now of the finest weather, and goldenrod and asters and other fall flowers have yielded well; but I have bought a ton and a half of best granulated sugar at war prices to feed my bees.

Humberstone, Ont., Sept. 23

Heads of Grain from Different Fields

THE BACKLOT BUZZER

The fellow who made such a howl when he bought war sugar at seven cents a pound is now sellin' it for eleven. His bees filled up on goldenrod.

Excessive Heat Causes Bees to Carry an Astonishing Amount of Water.

We have just had a heat wave here—125 degrees in the shade—and it was amusing to see the way the bees behaved, and how madly they went for water. The extreme heat stopped the honey-flow, but the bees took no notice of any honey exposed. All they wanted was water. They were getting their principal supply from a water-hole half a mile away. Then some of them discovered that the tap was dripping, and in a little while there was half a pint of bees hanging on to that tap. By and by the accumulation would become too great, and the whole lot would fall off; but the cluster would re-form with fresh bees instantly. I put a tub under the tap and filled it, and it was immediately rushed, and black with bees. Those from the tap fell off into the water, so I got a dead bush and lifted them out on to the grass, and instantly they were covered by others sucking the water off. I covered the surface of the water with bushes so that they could not get drowned. An apiary of 150 hives emptied a twenty-gallon tub in less than three hours. These hives had no shade-boards on, and yet only three combs split below the top-bar with the heat, and not one melted down. The bees were so crazy after water that they would crowd on to one's bare arms and suck the perspiration; and if one got a cup of water to drink the bees would be into it before you could get it to your mouth. Now, what did they require all this water for? In my opinion, to spray over the combs and brood to prevent them from melting down with the heat. MAJOR SHALLARD.

S. Woodburn, Aus., Sept. 12.

[We recall that bees drink a great deal more water on hot days than on other days, and yet we never heard the explanation offered that they use water brought in to spray or dampen their hives. We have never, in all of our experience, noticed any dampness in the hive on hot days, although we have repeatedly seen it on a warm day just following a cold winter spell. But why should not bees need to drink more water in extremely hot weather for the same reason that dogs, horses, cattle, and their owners do? Is it not reasonable to suppose that they need it just as they do?—ED.]

Are Worker Larvæ Fed Royal Jelly for the First Three Days?

Referring to the statement, page 255, April 1, "Then change their minds and feed royal jelly for a queen," is not the white substance in the bottom of the cell, in which the very young worker larva is floating, chyme, or royal jelly? The fact that they are floating in it seems to me as if they had not been able to consume all that has been offered them.

This day-old larva can be scooped out with the chyme, without the least injury, and placed on the chyme in the cell-cups. I have not been able to see any difference in the queens so reared, except that they seem better than some that I have, may be on account of the selection and being raised out of the swarming season.

But if we can get better queens by any extra work, we should not spare it. Don't queens sometimes leave royal jelly in the bottom of the cell that they have not been able to consume? This is not meant to criticise anybody, but to learn all I can about the work.

Cayeiras, Brazil, April 23. CARLOS SMITH.

Trapping Robbers Not Recommended.

In GLEANINGS just received I have noticed the editorial on trapping robber bees. Aug. 15th GLEANINGS previously outlined this plan, and I tried it once too often. It works perfectly, but it puts the bees in an inferior hive while killing out another and stronger hive. Better let them rob, and make the strong one stronger, instead.

FEEDING CRUSHED APPLES.

I wish to inquire if it would be possible or of any worth to crush apples in a cider-mill and scatter them out for the bees during this month in place of feeding for a late September flow. Apples are practically of no cost, and I have noticed bees on fruit and juices, and think the crushed apples would also provide a bit of poultry food. CHAS. H. CARGO.

Bladen, Ohio.

[We would not advise the apple juice, because of the danger of bee dysentery before spring.—ED.]

Carniolans Swarm in March.

I have been having quite an experience with Carniolans that I thought possibly would interest some of your readers. I have an outyard of about 40 colonies of these bees. On March 13 they cast the first swarm. After remaining in the air for some time they entered another hive, joining another colony. In a short time they came out again and returned to the old stand. Not being satisfied there, they soon re-entered the other colony, where they still were, April 10. On looking through the united colony, I found one dead queen and two live ones. All were last year's queens. One queen was taken from them; and on looking over the colony a little later I discovered that they had balled and killed the other one. At this time they had no larvae. The queens had just commenced laying. I also noticed on the same day that my golden Italians had sealed brood; and, from the looks of it, it was about ready to hatch.

March 29 the second swarm issued. It was finally persuaded to return to the old hive, where it still remains. At this time there was nothing for them to gather except pollen from elm-trees and a little dandelion. Well, this was the limit, and I decided right then to get rid of all Carniolans as soon as goldens could be reared to replace them. Life is too short to be fooling with such a breed of bees. The only desirable feature about them is that they are possibly a little more gentle than other races of bees. However, I find but little difference in gentleness between them and my goldens; and when the honey-flow starts, the goldens get fairly crazy bringing it in, while the Carniolans get just as crazy at swarming; and when the season is over you have a lot of colonies to be fed for the winter. No, thank you, I don't want any more Carnolians.

Kansas City, Mo. A. T. Rodman.

The Origin of the Cage Method of Introducing Queens.

Writing in 1814, after 64 years of beekeeping, Jonas DeGelieu, of Neuchatel, Switzerland, describes a cage of wood covered with wire cloth (wire grating) from which the queen is released at the end of two days. He gives the credit to Schirach; and as the latter was familiar with many very ancient methods it may have originated long before his time.

Réaumur, about 1740, introduced *direct* by giving a queen to a small cluster of confined bees. Huber, about 1790, introduced direct to a colony, *24 hours after removal* of old queen, and this practice became rather common among early English beekeepers. Many since have introduced direct after certain intervals. So far as I can find, it is only by the smoke plan that we can introduce any queen to any colony or lot of bees at any time. But one never can tell. The plan may be found in some old book or magazine one of these days. But it is good, any way. Arthur C. Miller.

Providence, R. I., July 11.

Introducing from a Cage on the Alighting-board.

I have succeeded with the smoke method of introducing, and also the starvation and smoke plan combined. I have also had failures with them all. Just lately I have discovered a plan, new to me, that works best of all so far. I have not tried it extensively as yet, introducing only five queens, all of which were accepted.

I will explain the condition of the first colony, and the method. I caged the queen, without food or escorts. After about fifteen minutes I placed the cage on the alighting-board close to a cluster of bees. The colony had ripe cells, and I did this just after sundown. The bees collected all over the top or wire cloth of the cage, and seemed friendly. I had closed the hole in the end of the cage with a small stick that was smaller than the hole, and could be removed without disturbing the bees. After about ten minutes I removed the stick, and some worker-bees went in. I left her to her fate. The next day she was busy laying, and had cut the ripe cells down.

The next queen was introduced in the same way to a colony that had no show whatever of rearing a queen. This one was introduced before sundown.

The next one was introduced early in the morning before six o'clock. The colony in this case had sealed brood but no larvæ nor queen-cells.

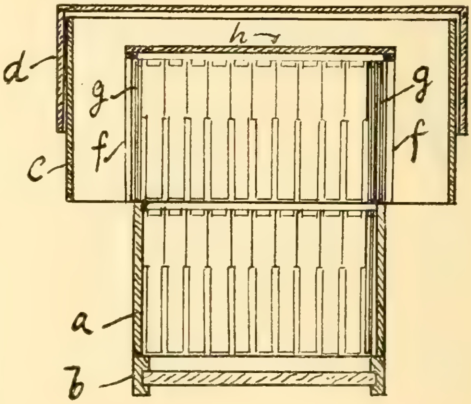
The last one I introduced was to a colony that had been queenless 24 hours. I introduced her direct from her own colony, and in ten minutes she was in the other hive being fed by the bees and crawling around on the frames. This last introduction took place in the middle of the afternoon. All were treated in the same manner except the last one, which was not allowed to get hungry before placing her on the alighting-board.

I should like to have others try this plan, and report their success or failure.

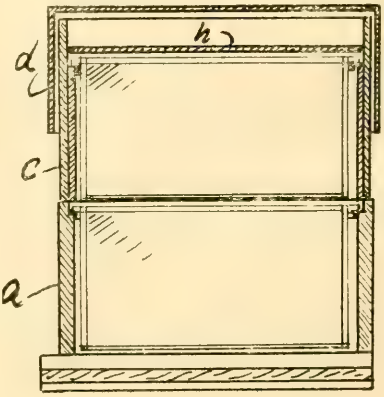
Kansas City, Mo., Aug. 9. A. T. Rodman.

Winter Case Used as a Super

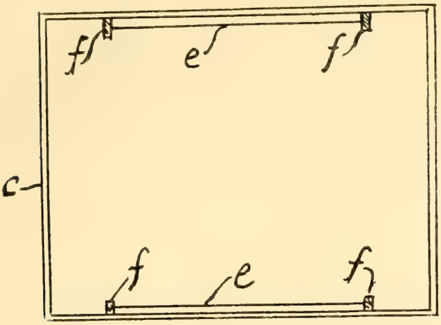
I recently secured a winter case, and altered it as shown by the sketches herewith, to use it as a super. I put in ten frames between the two division-boards in which the horizontal slots are closed. At the ends the bee-spaces are closed by the cleats *f* (see sketch). The bees glue the small cracks, and make the super tight.



a, hive-body; b, bottom-board; c, winter-casing; d, telescoping cover; e, boards ⅜x8¾x16, nailed inside of winter casing to carry frames; f, cleats ⅜x¾ x8¾, nailed inside of casing to hold division-boards in place and close bee-space; g, division-boards with bee-slot closed with a strip ¾ x ⅛; h, inner corner with side cleats ½ x ⅜, resting on g and raising it above the frames to give bee-space.



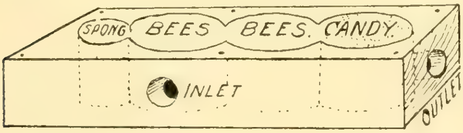
My object is to make use of the winter case in summer, and not to have any bulky parts to store. I am trying to find some way of nailing on permanently the padded cleats which come with the winter case.



Highwood, N. J., July 16. J. ILTIS.

Sponge to Hold Water in Mailing Cage

Could not enough water for, say, a week in the mails be afforded by a saturated piece of sponge in a smaller added compartment at one end of the usual three-hole cage, thus, and waxed inside?



INVERSION OF COMBS A VALUABLE FEATURE.

In looking over some recent back numbers I notice your reply in the Nov. 15th issue, p. 777, to D. W. Howell, on "reversing," or, as we call it, "inverting." (By the way, is not the latter the more correct word when we want to signify turned upside down? Besides, "reversing" cases of hives—that is to say, turning back to front, has the advantage of being distinct and separate from inverting them.) In your footnote you depreciate the value of *inversion*, so that one would conclude it is among the scrap-heap of at one-time popular ideas, and unworthy of further notice. Permit me to combat this conclusion. For 25 years I have been making my living from bees in Australia, and found no hive so handy, so profitable, and so well adapted to outapiary expansion as one that is always readily invertible; and why? Just because inverting (at the right time) *does* destroy cells and *does* check swarming; that it enlarges the brood-occupied space; consequently, it sends the honey upstairs, and that it gets the combs built to the bottom-bars; and by thus doing one can entirely dispense with wires in frames. But to have the benefits of inversion one must have a hive adapted to it—that is, a divisible shallow-case hive. There is all the difference in the world between the process as we do it and as described by D. W. Howell, with Hoffman frames.

Cavendish, Australia. THOMAS BOLTON.

[Years ago, before queen-cage candy had become perfected, a little piece of sponge soaked in warm honey was used as a means for supplying food to a queen-bee and her attendants when sent by mail. It did not give as good results as the candy now employed, principally because the sponge would not hold enough honey, and because it dried out. While water could be given to bees in a sponge in the same way, it would have a tendency to dry out, probably before the bees reached their destination. Of one thing we are certain: A continual supply of water, providing the supply can be regulated so as not to feed too fast, is a good thing.

The word invert is better than reverse; but the two terms have been used indiscriminately for many years, and it seems hard to eliminate the less descriptive word. We are glad to know you have had a favorable experience with inverting; but we received reports in 1885—1887 showing that it failed to do some of the very things that you claim for it. There is one thing that we are all agreed on: that inversion will accomplish filling out the comb clear to the bottom-bar. If reports we get in this country are to be believed, it is not infallible in bringing about the other things claimed for it.—ED.]

Refining Wax; Keeping Queens Out of Upper Stories

1. If all the bees confined with the queen in a mailing-cage die, would other bees from the same hive injure her if placed in the cage with her?

2. I have heard that, if burr-combs and pieces of wax that are not very dirty are boiled in vinegar, they will be cleaned. Can you tell me how this can be accomplished?

3. I have seen some two-story hives with brood in both upper and lower stories. How is it that the queen will sometimes lay in both upper and lower story, but not in an extracting super?

Philadelphia, Pa., July 30. J. SWEENEY.

[1. It does no harm to the queen to renew the escort bees. As a precaution, however, select young bees, for they not only make better escorts, but they have more vitality. You do not need to renew these bees, of course, if you merely want to introduce the queen.

2. Wax may be refined with vinegar; but the process is quite uncertain, and quite an elaborate equipment is necessary. For this reason, and also because of the fact that there is the greatest danger of discoloring the wax or making it water-soaked, we never advise the use of any kind of acid for the average producer of wax.

3. Queens do lay in extracting-supers, and for this reason quite a large percentage of extracted-honey producers use queen-excluders under the extracting-super to keep the queen out. By special management the queen can be confined to the lower story without the use of the excluder; but the safest way is to use an excluder and be sure.—ED.]

Modifying the Escapes to Afford an Easier Passage when Used as Robber-traps.

I am interested in A. J. Plummer's plan for stopping robbing and disposing of robbers, for I believe it will be of great benefit to the beekeepers of to-day. I tried it out on a little different plan, and found that it worked to a success.

Take three, four, or even half a dozen Porter bee-escapes. Cut off the ends that have the holes in, leaving a straight passageway for the robbers. Insert the escapes into the entrance of the hive alongside each other so that there will be no projection on the outside of the hive, and the robbers will go in without resistance. In a very short time thousands of robbers will be trapped.

Meadville, Pa., Aug. 29. A. B. MCGUIRE.

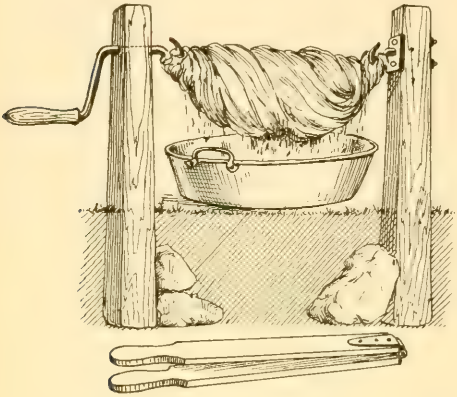
Transferring from Box Hives.

My method of transferring from box hives is as follows: The box is turned bottom side up, and a central section of the bottom is torn off, thus avoiding the breakage of honey and bringing the brood in closer contact with the frame of brood which is placed in the hive set on top. With a few empty combs and one of brood in the top hive, directly above the exposed brood below, the queen readily visits the upper hive for laying, and is shut off from the box hive by an excluder. In 21 days the box is removed, and the upper story takes its place.

Cleves, O. R. C. HUGENTOBLER.

A $1.00 Wax-press.

Hook a common bran-sack by the corners and middle, at ends on each hook. Put in boiling wax, about 6 quarts solid matter. Turn the crank rapidly. There is no holding, and no tucking. Turn as tight as possible; then with a pair of sticks tied together at one end press any part not quite dry.



With cheap Cuban labor I find this far better than either the Hatch or Hershiser press.

Henadura, Cuba. M. C. ENGLE.

A Marvelous Record in Catching Stray Swarms

I have noticed the article on page 473, June 15, on catching stray swarms, by my father, J. M. Kinzie. About 12 years ago, when I lived in Michigan, I read in GLEANINGS about a man in California who had lost almost all his bees, and had piled up forty hives with empty frames in them, and in the fall he had caught 17 stray swarms that took possession of them. My brother and I started out then to catch stray swarms. First we used old boxes, boring holes in them and setting them in trees; but when we got them home we always had a job to transfer the brood into frames. On this account we are now using eight-frame hives, or boxes that will hold eight to ten frames, and number them and mark the number in a book, together with the location. Trees are the best to put boxes in.

The entrances should be the same as in a hive. I use only starters, one-half to one inch wide. I formerly used one comb; but I stopped that, as the moths get in, and then it does not look good to the stray swarm. Furthermore, if a comb is used, there is more danger of foul brood breaking out again in case the swarm came from a diseased colony.

We locate these boxes along the streets and roads where people are passing, putting them 20 to 35 feet high. I set out 175 boxes this year, and caught 133 swarms so far this year, and have taken over 3500 pounds of honey from them.

I have 260 colonies all together, and I don't let my old colonies swarm. I get what increase I want by catching stray swarms. I own three lots in Arlington. There are two tall pine-trees in front of the house, and so far this year I have caught 14 swarms in them and 14 last year.

Arlington, Cal. CHAS. S. KINZIE.

What is a Standard Hive?

The different bee-supply manufacturers say that they manufacture hives of standard size, and that leads the beekeeper to think that the hives and brood-frames will interchange in hives of different makes. I have used hundreds of hives made by one concern, and about 1600 hives by another. I find that the long top-bars for hives of one make are too long for the other hives. I have cut off many of the top-bars before they would go into the hives in question.

The unbound queen-excluders made by one firm for eight-frame hives are too long for the hives of the other make, and one end stays on top of the hive instead of going in on top of the brood-frames; and the one end being up, it kills the bees under the one end of the extracting-frames.

I am not sure if the outside of the hive is the same size; but the thin part of the end at the top is thicker on the one make than on the other. I never measured the hives, and it may be only the thickness at the top of the end of the hive; but this makes it bad for the beekeeper who has hives made by different companies. Now, if the manufacturers could have made the supplies to exactly the same measure it would have been much better for the beekeepers. The short top-bars of the one make work well in the other hives; but only the longer top-bars will not go into the other hives.

A SUBSCRIBER.

A Crop of Fine Honey in Maine, by an A B C Scholar.

I have had a prosperous year with my bees, and shall have 1000 to 1500 lbs. from 30 colonies. I will send you to-day by prepaid express a sample of my honey. Will you please let me hear from you as to what you think of it as regards flavor, etc.? This I send you as a gift, as I learned my A B C of beekeeping from you, and hope that you may be spared many years, even though you do not take an active part in the work as formerly.

Oakfield, Maine, Sept. 3. R. E. TIMONEY.

The honey mentioned above is of such fine quality that we wrote regarding it. Below is the reply:

The main honey crop is the common white clover; also in the summer the odor of the alsike clover from the fields is very noticeable. There is but little basswood in the woods around here; but raspberry and fireweed furnish honey from the burnt-over places in the forest. Yes, I have a good market at from 17 to 20 cents per lb. right at my door, for all I can produce. People do not like or buy extracted honey in this section.

Oakfield, Maine, Sept. 17. R. E. TIMONEY.

What is Honey?

BY GRACE ALLEN

"Let us see what honey is," the solemn scholar said,
Took his test-tubes and his books, bent his mighty head;
"*Levulose and dextrose, moisture, too, and ash;*"
While he wrote his formula, *how the bees did flash!*

"I know what honey is!" a little maiden cried;
"On every jolly little bee a fairy sits astride;
Straight ahead to fairyland he guides the jolly bee,
Waves his wand, and honey comes, and they bring it back to me!"

Riotously radiant, a million million bees
Flash across the meadows to the blossoms and the trees;
Claim the blossom-spirits in the perfume and the sweet,
Honey is the heaven where these flower-spirits meet!

A. I. Root OUR HOMES Editor

Fear not, little flock; for it is your Father's good pleasure to give you the kingdom.—LUKE 12:32.

Be ye not therefore anxious, saying, What shall we eat? or What shall we drink? or Wherewithal shall we be clothed? For after all these things do the Gentiles seek; for your heavenly Father knoweth that ye have need of all these things. But seek ye first his kingdom, and his righteousness; and all these things shall be added unto you. Be not therefore anxious for the morrow; for the morrow will be anxious for itself. Sufficient unto the day is the evil thereof.—MATT. 6:31, 34.

In our last issue, page 787, I replied briefly to the *Plain Dealer's* editorial suggesting that the State of Virginia would lose $700,000 revenue by voting dry. Since then, while reading the sixth chapter of Matthew I was impressed with the thought that God's promises cover the matter of *revenue* as well as food, clothing, etc. Suppose we read the 31st verse this way: "Therefore take no thought saying, What shall we eat? or What shall we drink? or Wherewithal shall we be clothed?" Can we not consistently add to the above, "Or how shall revenue be secured"? Then right after the 31st verse we read, "For after all these things do the Gentiles seek." Is not this indeed true at the present time now as well as ages ago? Then we read, "For your heavenly Father knoweth ye have need of all these things." Then comes that grand text and promise that has been a beacon light to me since I began reading it with emphasis to the boys in our Medina jail over forty years ago: "But seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you." Does not this promise, dear friends, include revenue as well as every thing else? While the above thought was in mind, the following letter came to hand:

POSTOFFICE DEPARTMENT,
DIVISION OF RAILWAY MAIL SERVICE,
OFFICE OF CHIEF CLERK.

Mr. A. I. Root:—Attached you will find a clipping taken from the editorial page of the Cleveland *Plain Dealer* of September 30. Could you give us a talk on this subject in the October 15th edition of GLEANINGS? I think it would do a lot of good among those of our fraternity in helping them to decide this question.

I have been a subscriber to GLEANINGS for about seven years, and a reader of the paper since 1890, having used my father's copy. Your records will show that he first began taking the paper in 1883.

I am also a reader of the *Plain Dealer*, and my personal opinion is that this paper is on the opposite side of this question, as witnessed by the advertisements they carry.

Cleveland, O., Sept. 30. R. W. COBB.

Our readers will notice from the above that this letter comes from a railway mail clerk, and the expression in the letter, "our fraternity," probably refers to the clerks in the mail service—a class of men as bright and clean, as a rule, as can probably be found in Ohio or any other State, for that matter. In accordance with the request of the writer I am going to take space to give the editorial from the *Plain Dealer* complete. Here it is:

THE WET AND DRY AMENDMENTS.

Four amendments to the State constitution come before the voters of Ohio in November. All have been initiated by petition; the legislature has passed judgment on no one of them.

The sharpest contest comes over the so-called "wet" and "dry" amendments, one of which would abolish county local option—whatever else it might do; the other would add Ohio to the ten States which already have statutory prohibition. It is narrowly conceivable that both these conflicting amendments might receive an affirmative vote in November. In all probability, however, one of the two will be rejected; both of them may be defeated.

Practically speaking, each voter must decide whether he will support the "wet" or the "dry" amendment, or vote against them both. It is a question confronting every elector in Ohio which he must decide between now and Nov. 3.

Let us see what the two amendments would accomplish if written into the basic law of the State. The "wet" amendment reads as follows:

"No law shall be passed or be in effect prohibiting the sale, furnishing, or giving away of intoxicating liquors operating in a sub-division of the State upon a vote of the electors thereof or upon any other contingency which has force, within territory larger than a municipal corporation or a township outside of municipal corporations therein.

"All laws in contravention of the foregoing are hereby repealed. Nor shall any law be passed prohibiting the sale, furnishing, or giving away of intoxicating liquors throughout the State at large."

Obviously, the amendment is vague in meaning. Attorney General Hogan says it would accomplish one thing; lawyers of equal ability declare it would accomplish that one thing and much besides. In case this provision were adopted, it would probably take a high-court decision to determine how sweeping its effects would be.

The "dry" amendment is in these words:

"The sale, manufacture for sale, and importation for sale of intoxicating liquor as a beverage is hereby prohibited. The general assembly shall provide for the enforcement of this provision, and enact laws with adequate penalties for the violation thereof."

A schedule attached to this amendment provides for its taking effect one year and six months after the election at which it is adopted.

This "dry" amendment evidently has the advantage of clearness. One who votes for it may know precisely what he is approving, so far as the text of a proposal foretells the condition it would bring about.

What, then, shall the voter do—vote "wet" or "dry" or against both amendments?

Ohio definitely adopted the license plan for controlling the liquor business two years ago. The plan itself has been in complete operation less than one year. It starts with large promise of good results, but the time has been too short to justify either a sweeping approval or disapproval.

"Wets" and "drys" in the convention of 1912 compromised their differences and voted to submit the license amendment to the people. The proposal bore the name of a "dry" delegate. In the constitutional campaign there was no organized "dry" opposition to the amendment. Many temperance advocates over the State lent their support to it.

Nor has the system in operation proved false to their confidence in it. It has largely reduced the number of saloons, put the business on a responsible basis, erected effective barriers against the operation of saloons by questionable characters, and bids fair to take the liquor issue out of politics.

Neither "wets" nor "drys" should have re-opened the old question so soon after the adoption of the license amendment. And, in this connection, it is to be noted that each side in the present controversy opened its fight by accusing the other of precipitating the hostilities.

The *Plain Dealer* considers the "wet" amendment so loosely drawn and so obscure in meaning that it would be dangerous to write it into the constitution under any circumstances. Against the adoption of either "wet" or "dry" proposal we believe it may be fairly urged that it would change the license system before the system has had a chance to prove its success or failure.

Therefore, the *Plain Dealer* recommends to the voters of Ohio that they defeat both amendments.

With the fore part of the above I heartily agree; but when it comes to the statement in regard to the license plan I shall have to make some objection. The wets and drys *did* in convention agree substantially to the license plan as we have it; but when I say this, permit me to say also that the Anti-saloon League objected to a license law for the State of Ohio, first and last; but when we ascertained pretty definitely that the voice of the people was pretty sure for some kind of license law, the Anti-saloon League, as a sort of compromise, amended and modified this license law until the liquor people *themselves* did not want it. However, it was put to vote and carried, but under protest from the Anti-saloon League from beginning to end; and when the wets began to see where they were, it was under protest almost from beginning to end with the wets also. Witness the result. The wets were in such haste to get rid of the license law that they started out thus early to abolish local option and every thing else as above.

In the next to the last paragraph we read: "Each side in the present controversy opened the fight by accusing the other of precipitating hostilities." In reply to the above I think I am in position to know that it was the wets who first started out with their amendment to do away with *all* present temperance laws. The Anti-saloon League did not think of State-wide prohibition just now, and would not have thought of undertaking it had we not thus been crowded into it. That you may know I have good reason for thinking I am right in this matter, permit me to say it was my privilege to be present as one of the charter members of the first Anti-saloon League meeting ever held; and I have been in close touch with it ever since, and have been consulted continually in regard to its every movement; and just as soon as there was a glimpse of what the wets thought of undertaking I was promptly notified, and gave my vote that we should, *under the circumstances,* mass our forces for *State-wide prohibition.*

It is true the license law has reduced the number of saloons; but the statement that "the operation of saloons by *unquestionable characters* has been a success" is untrue as almost everybody knows throughout the State of Ohio, especially in the few remaining wet counties and wet towns and cities. The *Plain Dealer* says, "Neither the wets nor the drys should have opened the old question so soon." This may be true; but it indicates how unsatisfactory it has been to both wets and drys, and to the present decision that no law nor compromise can be effected that will suit both sides. There *can* be no compromise nor any common ground between the forces of darkness and light. "Ye cannot serve God and mammon."

I am glad to hear that the *Plain Dealer* considers the wet amendment so "loosely drawn and obscure in meaning that it would be dangerous to write it into the constitution of the State under any circumstances." Amen to the above. But when the *Plain Dealer* closes up by recommending that the people vote against State-wide prohibition, I am both pained and surprised, as I have said before. The *Plain Dealer* has been our favorite daily paper so long that I can scarcely remember when we did not have it in our home. Many of its editorials have been such excellent sermons that I have quoted them again and again on these pages; but I have always felt hurt whenever I have seen glaring advertisements of liquors on its pages. When, as a result of Billy Sunday's work in Pittsburg, two great dailies rejected all liquor advertisements, I gave place to the announcement and asked why the *Plain Dealer* could not follow suit; and I repeatedly urged them to follow the Chicago *Tribune* and other prominent periodicals, and throw out their liquor advertisements. They have replied courteously, and at times at considerable length, but yet these same liquor advertisements continue. Our good friend from the Postoffice Department suggests that the advertisements they carry may have something to do with their decision to be against State-wide prohibition. Should they join the temperance people, the Christian people, the schools and churches, and the educated class of our State, to be consistent, they *would* have to rule out these obnoxious advertisements, and they certainly must be obnoxious to all good people who read the *Plain Dealer.* Not very long ago one full page of that great daily was given to advertising intoxicating liquors. Another sad fact comes out right here. There is no other daily paper published in the city of Cleveland—at least no prominent daily paper—that is any better in this respect than the *Plain Dealer.*

An agent for one of the dailies assured me some time ago that *their* paper would rule out all liquor advertisements. I gave him my subscription; but the first issue received proved his mistake.

I believe it was the present Governor of Ohio who inaugurated the license scheme. In fact, this is his pet hobby; and as a loyal citizen I try to treat with reverence and respect the office of the Governor of our great State. When I saw that it seemed to be his peculiar hobby I tried to give him credit for being honest in it; yet I think he will soon see his mistake if he has not done so already.

On page 787 of our last issue, already referred to, I asked if the different States that have been dry for years were *suffering* for lack of revenue; and I think almost every wideawake citizen knows without telling that there is no such lack. The beautiful texts I have given you at the head of this talk have been corroborated, and are being corroborated again and again. The dry States have towns and cleaner towns, surely better roads, better schools and churches, and they are fast getting better and cleaner factories. As most of them are new States the factories have not, at least to a great extent, got well started as yet. But the agricultural communities are certainly away ahead in every thing pertaining to scientific and successful agriculture.

Not very long ago there was an item in the *Plain Dealer* to the effect that a certain town (I think it was in Ohio) was in "total darkness" because they had banished saloons. You see the revenue from the saloon-keepers had helped them to run their electric-light plant; and this plant was shut down on account of a lack of funds. There was neither comment nor suggestion that the town that had nerve enough to rule out *saloons* would very *soon* scrape up revenue enough to run the electic-light plant if nothing more. But even if they did not, the darkest midnight is a *thousand times* better than the glaring lights of the saloon and brothel. On page 779 of our last issue I spoke of an intemperate neighbor who turned his wife and family out of doors during a winter night. As we had open saloons in our town at that time, I soon found this poor man in the jail with half a dozen others of like habits. I induced them to sign the pledge except my neighbor Mr. Hammer. After they all got out, through the inducement of the saloon-keepers all or nearly all broke their pledges almost immediately. About this time I met my neighbor on the street, and he called my attention to the fact that those who had signed the pledge had already broken it. Then he said something like this: "Mr. Root, under the circumstances don't you think *it was better* for me to refuse to sign that pledge? These men have broken their promise already. I have not broken mine, because I did not *make* any promise."

I mentioned this matter to the Rev. C. J. Ryder, who was then pastor of our Medina church. He said something like this:

"As you state it, Mr. Root, your neighbor, Mr. Hammer, wanted the privilege of *getting drunk with a clear conscience.*" And it strikes me, dear friends, that the people who vote wet have got the mistaken idea in their heads that, by so doing, they can, in the future, "get drunk as often as they please, with a clear conscience." God forbid!

One more argument has been brought up. A well-to-do business man of our town said he could not vote for State-wide prohibition because he did not believe it was right to allow one town or one locality to lay down a rule of conduct for another town or another locality. Now, this looks very plausible; and if the tax-payers of the whole State of Ohio were not obliged to support our jails, penitentiaries, asylums, and infirmaries, there might be some consistency in it.

Once more, I told you on page 787, last issue, how our county of Medina, that has been dry for over twenty years, is cursed by a saloon only seven miles away from where I sit writing, just over the line in the adjoining county of Lorain. Have we here in Medina Co. no right to protest against this saloon, so near, that is doing a land-office business day and night, Sundays included? A big fight is going on, I think, all over our State; but I am glad to say it is a good-natured and friendly fight. I wish I could say it is a fair and honest fight on all sides.

Over in Summit Co., that adjoins us on the east, there is a bright little woman whose name has been getting into the papers of late. Some time ago a brewery in that county painted an advertisement of their beer on her fence. She soon taught the enemy, however, that she could use a paint-brush too. I have forgotten how she fixed it; but the brewery folks found this attracted so much attention that automobiles filled with people came out to see the "new version" of their advertisement, and have a big laugh over it.

Well, Akron's oldest county paper, the *Beacon-Journal,* has just come out with a full-length picture of Miss Ellet, with the following under the picture:

> ### PUT ONE OVER ON OLD DEMON RUM.
>
> Miss Minnie J. Ellet, of Springfield Township, Akron's militant "dry" fighter, is chuckling over a victory over the demon rum.
>
> It happened like this:
>
> An advertising crew from Cincinnati, it seems, is going through the countryside, erecting bill-boards with arguments for the passage of the pro-booze amendment. All unsuspecting they went through Springfield and began setting one up right alongside the Ellet homestead.
>
> Miss Ellet saw it, and the weatherman hung out the storm signal. She wanted to know what right they had to deface her neighborhood.
>
> "State road—public property," said the bright young man in charge; "$50 fine for any one molesting or disturbing this sign." And he tacked a little tin sign to that effect on the bulletin board.
>
> Minnie hunted up her lawyer. She came back with a smile and three great big prohibition posters which she carefully stuck up all over the bulletin board, entirely concealing every last Cincinnati argument.
>
> "They haven't any rights there that the law recognizes," says Minnie. "We'll post up our posters over every one of their bulletin boards wherever we can find them. I'm passing the word along to other places. We'll let old Demon Rum pay the freight for our advertising now."—*Akron Beacon-Journal.*

I call attention to the "tin sign" to show with what cheek the liquor party attempt to deceive the people. There is a law and a fine of fifty dollars for defacing or destroying guideposts or any thing for the benefit of the traveling public. This law was enacted because boys in some localities had been in the habit of smashing signboards by throwing stones at them.

Miss Ellet writes in regard to the above as follows:

> *Mr. Root:*—I am enclosing a clipping. It made a "hit" here. The editor asked me to let them make the story. Two neighbors who had pulled their signs out by the roots before they knew what I wanted will plant them back Friday. I'll paint 'em black first—put the old "Grossvater" beer and all his relatives in mourning by Nov. 4, if what I can do will do the job. I wish the same could be done all over Ohio. The highway is for travel *only,* and no firm or corporation can put any sign even in the road without consent of property-owners.
>
> Yours for the highest glory of God, and that to him belongs. MINNIE J. ELLET.
>
> Akron, Ohio.

Our good friend Minnie Ellet happened to be present at a farmers' picnic where the Governor of Ohio was to speak As he was about to bring his address to a close without reference to the wet or dry war, Miss Ellet arose, and here is a report of what followed:

> ### GOVERNOR COX AND THE PICNIC.
>
> We went to the farmers' picnic Saturday, and we heard the great Governor Cox tell the farmers of the great things he had done for the *now* great State of Ohio. But he said never a word about the three vital issues—suffrage, prohibition, and home rule (ruin)—now before the people. He told of the great revolution the new school law would bring to pass in the country school; a revolution that would cost the farmers almost nothing because the *State* was going to pay half the bill—*partly from the liquor tax.*
>
> Well, he did give the "people" a chance to ask questions, and one of those females whom his party doesn't consider "people" butted in and asked him who paid this liquor tax. He replied: The man who gets the license of course." She wondered where that man got the money; he hemmed a little, then he said he supposed from the consumer.
>
> Then he jumped over to his appointing the license board; that he did it only on condition that he have power to "behead" the ones who did not obey the law. He's beheaded *just one.—Beacon Journal.*

Now, in conclusion, is there any one whose eyes rest on these pages who thinks that the State of Ohio is going to suffer any lack of revenue because the thousands of saloons of Ohio are put down and out for evermore? "O thou of little faith! wherefore didst thou doubt?"

"SWAT" THE SALOON.

I learn by kind letters that both California and Arizona are engaged in a contest similar to the one in Ohio; and they, too, have a vote Nov. 3. A circular to tax-payers, giving an appalling array of figures, in order to show how people are being robbed, closes up by saying, "Instead of swatting the fly, swat the saloon." And would not that be a good slogan for us to help along from one State to another? Let me give you the windup from the Arizona leaflet, *after* their appalling array of figures:

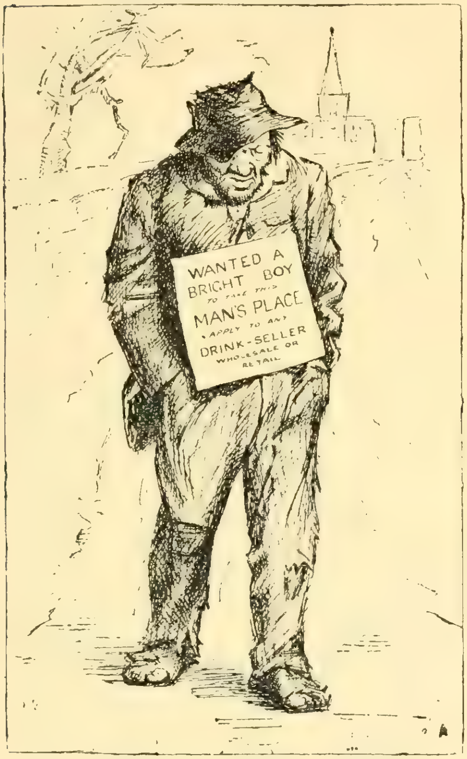
> Liquor forces will attack this showing; but the more they try to explain, the deeper they will get in the mire the saloon has made for them.
>
> It will be observed that these enormous losses are *annual.* In ten years the burden is frightful.
>
> Added to the expense shown by the tables is the direct cost of liquor, amounting in the whole of Arizona to $25,000 *every day in the year.* Ten millions of dollars are spent over the saloon bars of Arizona in a year, half of which leaves the State forever. It goes to make fat the brewers and distillers of other States. This drain and the tax drain are enough to make the Arizona tax-payer arise in righteous indignation, and swat the saloon.
>
> The revenue derived amounts to nothing compared with the enomous cost. Vote to end it. Vote Arizona dry.
>
> TEMPERANCE FEDERATION OF ARIZONA.
>
> Phoenix, Ariz.

"WHAT SHALL THE HARVEST BE?"

Be not deceived; . . . neither thieves, nor covetous, nor drunkards, shall inherit the kingdom of God.—I. COR. 6:10.

I am not thinking, good friends, of the harvest of corn and wheat just now (I think we as a people of the United States can fervently thank God for the harvest of corn and wheat); but the harvest I am thinking of is in regard to the boys and girls just now of our State of Ohio. What is going to become of them—your boys and mine—your girls and mine? And we older ones can look forward with a prophetic eye, or try to, and ask what is to become of the *grand*children growing up around us. What shall the harvest be? Judging from the past I should say a certain per cent of the harvest would be (God forbid) like the picture above. It was taken from the *Australian Temperance World* of Oct. 1, 1913. Away off in Australia they are considering this matter of "what shall the harvest be." We read above and below the picture—"Wanted—a bright boy." *Who* wants him? and *what* for? Now, some of the older people may not be able to read the placard, especially the small print. Here is what it reads:

WANTED



A BRIGHT BOY.

"Wanted—a bright boy to take this man's place. Apply to any drink-seller, wholesale or retail."

You see, if the drink business is to go on it has got to have recruits. The saloon-keepers and brewers must by some means enlist boys to take the place of the man in the picture, who drops out. The brewers cannot *live* in princely palaces unless they have consumers of their wares; and their motto is to create an appetite. It does not matter *whose* boy furnishes the nickels, just so they get them. The brewers and their wives flaunt their diamonds, and go about in showy equipages; but the boys in rags furnish the money. Do you want to help along the traffic? While your eyes rest on these words you are probably appalled by newspaper reports of the killed, dead, and dying, away over in Europe; but some good authority* has told us that *more* people are killed and made houseless and homeless by strong drink than by this wicked war; and *these* victims go down to fill drunkards' graves. Just now every man, woman, and child in Ohio should be enlisted against the drink traffic. Take this picture, show it to your friends and neighbors, and ask them if they wish to continue to support the drink traffic. I fear there is not a township nor neighborhood in Ohio that cannot furnish one or more samples of the work of the saloon-keeper as given in the above picture.

We are told that it is always well to listen to both sides of any subject. Below is something which I clip from the *Ohio Messenger*. You will notice *they* extract it from one of the liquor journals:

FROM THE ENEMY.

The *Pacific Wine, Brewing, and Spirit Review* makes the brilliant statement that the reason the churches oppose the saloon is that the saloons as competitors are injuring the business of the churches. People do not go to church any more, and therefore have hard work raising their salaries. They take it for granted that the reason the people are not in the church is because they are all in the saloons, and they therefore wish their business rivals suppressed.

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* We clip as follows from the *Twentieth-Century Quarterly* for September, 1914:

SOWING ALCOHOL, WHAT DO WE REAP?

The great war in Europe has suddenly shown us what war means in the twentieth century—not alone a "hell" of wholesale murder and unspeakable physical agony and family bereavement, and a fiendish fanning of race hatreds among the combatants, but want and woe among the neutrals also, through business broken up and prices raised to the starvation point for many. But if the liquor-traffic and its consequences could be blotted out, and it were as suddenly introduced in an alcohol-free world, we should see that the Drink Monster kills as many as even twentieth-century war of great nations; wounds and cripples as many; costs as much ($2,455,639,634 in the United States alone, and about twice as much per capita in Europe); and *no less makes neutrals suffer*. We who never drink must pay in the United States on our life-insurance premiums for the lives shortened by moderate drinking.

Men do not need religion, but they do need drink for the advancement of their physical, intellectual, and moral welfare.

The *Review* also volunteers the following remarkable statement:

"The human being is an alcoholic animal, consuming food which creates a demand on the part of the physical body for alcohol. The fact that all the great thinkers in art, science, and industry were and are alcoholics, may be accepted as an indication that alcoholic liquors have contributed greatly to the intellectual development of men. When it is considered that most of the crimes against virtue are committed by non-alcoholics, it is no more than right to conclude that *alcohol assists human beings to control their lusts.* There is no doubt that alcohol assists human beings to hold their greed, vanity, and ambition within bounds. It makes human beings *more considerate of their fellows* than they otherwise would be. It contributes to the development of human beings morally. All human beings should be educated to use alcoholic liquors.

"If the churches will confine themselves to preaching the ten commandments, and if they will induce their preachers to keep them, the saloons might then be willing to lend their very valuable assistance toward increasing the business of the churches."

The *Review* suggests the reason why women oppose the saloon.

"The women are also opposed to the saloons for business reasons. The women imagine that the closing of the saloons will help them to more pin money. They expect that the forced economy of the men will provide for the extravagance of the women."

I have taken the liberty to put some italics in the above. It is so extravagant, so much beyond the bounds of reason and common sense, that I think it will do good and not harm. It verifies the old proverb, "Give the Devil rope enough and he will hang himself."

Just notice the concluding paragraph. They would have us believe that our women want suffrage simply to get hold of some pin money. I wonder how much "pin money" the wife of the poor wretch whose picture I have shown above has. It probably takes every copper she can rake and scrape for *bread* for herself and children.

Notice, too, that expression, "injuring the business of the churches." It has not even entered their besotted brain that the churches and Sunday-schools are carried on for any other purpose than "business." They would put all our benevolent and Christian societies on a level with their own traffic. It makes one think of the poor deluded souls who talk about the revenue that is going to be lost if state-wide prohibition comes to pass.

HIGH-PRESSURE GARDENING

"FROM PRODUCER TO CONSUMER;" ONE OF THE SHORTEST CUTS.

Quite a little has been said about cutting out the middleman by keeping chickens in the back yard, getting a little mill to grind your own wheat, growing vegetables in your own garden, especially potatoes, etc. Well, just now in this month of October we are having quite a quantity of the best Country Gentleman sweet corn we have had during the year. Here in Ohio, by taking a little pains you can have roasting ears by the middle of July. When I was a boy I had early sweet corn ready for the table by the 4th of July, several seasons. Now that we have much earlier sweet corn than we had sixty years ago, it ought to be an easy matter to have Golden Bantam by the first of July. Then with a little pains you can have green corn for 90 days uninterruptedly. If the frost continues to hold off we can do it here in northern Ohio for 100 days. It was somewhat by accident this season that we have it right along now in October. I think I made my first planting in May; but cold rains and cold weather kept it back so that only a part of it grew. As soon as I saw what was not coming I planted more corn in the missing hills, or just a little on one side of them; then along in June I planted four or five varieties all the same day, the earliest to the very latest; then whenever any crop was gathered I planted some corn in its place. With one of the good hand planters such as we have nowadays it takes only a few minutes to fill up vacant spaces. I do not remember the date when I planted the last, but I think it was some time early in August. During the cold weather of the past two weeks (or perhaps I should say *cold nights*) it has grown very slowly; but to-day, Oct. 1, it is just in its prime. Mrs. Root complains that the cracked wheat is more trouble than to go to the grocers and buy cereals in pasteboard boxes, and this is why I want to call your attention to green corn. You can go out into the garden half an hour before dinnertime, strip back the husks, break off the ears, and put enough in your pockets for dinner—that is, if your family is small like ours—only Mrs. Root and myself. Leave the husks on the stalks, and toward night cut off the stalks where the ears have been removed, and give them to the cow, thus cleaning up your garden as you go along. Now, on the way to the house you can pick off all the silk so as to save your wife's time and keep the litter out of the kitchen. If I am correct, our best tender varieties of sweet corn can be cooked in fifteen minutes. Is not that a short cut from producer to consumer?

When I first begin eating green corn for summer it is apt to disagree with me. Nature has not yet become *accustomed* to the new diet; but let me suggest to elderly people that a very thorough chewing helps very much in this respect; and with the luscious green corn you can masticate it more thoroughly by taking some good bread and butter with it.

Some of you may urge that it is a great deal of work to take care of a garden; but I think most of you will find it pays big to get out into the open air more or less every day and use a hoe. There is a lot of time and money devoted just now to gymnastics; and this is all very well as far as it goes; but I heartily believe gymnastics in the garden is just as good as any thing you get from big doctors or from correspondence schools. I have taken entire care of our garden this year, of a little over a quarter of an acre. It is cultivated a few times with a horse. All the other work I have done with a hoe; and I have not only supplied our table, but I have carried basketful after basketful of nice green corn to our children's families round about me.

Now, before closing this corn talk I wish to speak again about the importance of having *good seed*. Growing your own seed instead of trusting to the merchants or the corner grocer, or even the big seedsmen, is another short cut between producer and consumer. I have selected nice specimens of all of our sweet corn to take down to our Florida home, where it will be planted in November. We have not had any frost in our Florida home that would hurt sweet corn for the past two winters, and therefore I am going to try it again. And, by the way, I want to ask you to notice the difference in germination between the seed you buy and the seed you grow and save yourself.

Now, here is something more I wish to say about seed corn.

SEED CORN SELECTED FROM THE FIELDS, ETC.

A year ago I went out into our cornfield and carefully selected about four bushels of ears—ears obtained from stalks where there were four in a hill; ears that had kernels clear down over the tips; ears with regular rows of kernels; ears that are hard and firm before the rest; ears that came from good strong stalks that did not get blown over by the wind, etc. Well, we had splendid germination, almost every kernel growing, and our whole crop, which is a splendid one, had kernels clear down to the tips like the ears I had selected. Let me tell you again how it was kept. I had a cylinder made of galvanized wire cloth—meshes so small that no rat or mouse could gnaw through. This cylinder is something like a tall barrel. It was placed on a box near a steam-pipe in the basement that is kept hot all winter. This lot of seed corn pleased me so well that I thought of using the two bushels of ears left for planting another season. Then I wrote to our experiment station near by. Below is what Director Thorne says about it:

> *Mr. A. I. Root:*—I have yours of the 25th, and would say that our Mr. Williams has made tests of seed corn of different ages, and has found the two-year-old seed to be apparently as good as the one-year-old, and with no material deterioration until the fourth year, after which it has fallen off rapidly in germination.
>
> CHAS. E. THORNE, Director
> Ohio Agricultural Experiment Station.
> Wooster, Ohio, Sept. 28.

While writing Director Thorne on the above I inclosed a clipping from my article, "Beware of Pickpockets," in our issue for September 15. Below is what he has to say in regard to the matter of robbing sick people:

> The clipping you send me describes an old trick, and it is the meanest kind of stealing. The intention is to work on poor people who have no money to spare; but it seems that fraud can always keep ahead. As soon as one trick is exposed, a new one is concocted.

BURBANK'S RAINBOW CORN, ETC.

On page 784 of our last isuse I gave you a picture and description of Burbank's Rainbow corn, supposing at the time it had little or no other use than as an ornamental plant; but to-day, Oct. 2, I find it equal in quality to the very best sweet corn. The kernels, when mature, are hard and round, like popcorn, only a little larger; but at the roasting-ear stage it resembles and tastes like the Early Bantam, but it seems to be *more* sweet and nourishing, if any thing. Of course, the ears are small; but as we have several stalks containing four plump little ears, it is not a bad investment for table use. Just think of it! *beauty* and *utility* all together. It is like a beautiful hen that lays eggs every day besides. I do not know at present whether this corn is offered by any of the seedsmen. I hope it is or will be. Meanwhile every paid-up subscriber for one year or more may have *three* grains on application. I have figured up that I shall have from 10,000 to 15,000 kernels; and if 5000 apply out of our 30,000 subscribers it may take my whole crop.

BURBANK'S SPINELESS CACTUS.

Ever since it was heralded, perhaps ten years ago, that Luther Burbank had done a wonderful thing in giving to the world a *spineless cactus,* I have been waiting to see how it turned out. The common wild cactus grows in our Florida home. It produces beautiful blossoms, right out in the street fronting our gate; and in the garden it is sometimes a weed that has to be dug up. It is a queer sort of plant, something like mushrooms, inasmuch as it will come up and grow vigorously where you do not want it and did not expect it, and then, again, it will not grow at all, where you do want it to grow. When we were down on the island at Osprey I found a cactus plant so loaded with fruit out in the woods that I gathered a little pailful, and found them very nice eating. Of course we had to take them on a fork and carefully peel them off with a knife, being particular to get off all the spines. Well, in view of the above you may imagine with what enthusiasm I read the following, which I clipped from a circular:

> It takes root within four to six weeks after planting. The plants increase tenfold during the first year, and during the succeeding years from twentyfold upward. In fact, there is practically an immediate return on the investment.
>
> It is the most easily cared-for plant known to agriculture. It requires no irrigation, very little cultivation, and it thrives in the poorest soil.
>
> An acre of alfalfa will produce only enough food to support one cow, while an acre of spineless cactus will feed eight cows. In other words, it has eight times the feeding value in quantity and quality of alfalfa.
>
> On poor soil, 180,230 pounds of cactus to the acre has been yielded, or ninety tons of the richest kind of forage. Cactus produces nearly double as much feed the third and succeeding years as it does the second season of planting.
>
> The leaves or "slabs" are used with extreme success as food for all kinds of stock, including poultry.

Besides the above, there were some very nice photos of cactus-plantations, and under one of the pictures of a single plant it reads like this:

> This plant is fourteen months old. Eleven slabs have been cut and sold, fourteen remain—showing twenty-five slabs for one—produced in this period.

In regard to what they have to sell, the figures are as follows:

> PRICES.
>
> 1 to 10 slabs, 60c each; 10 to 100 slabs, 50c each. SPINELESS CACTUS, INC.
>
> San Antonio, Tex., Gunter Bldg.

So far as I can remember, the prices above are about the same that they were ten years ago. From the *Florida Grower* I gather that there are several places in Florida where they have the real Burbank cactus; but I think that, as yet, they have not much of a stock, and the prices are very much as given above. In order to test the matter for myself, I made up my mind I would send for four or five slabs and give them a test in my Florida home; but before doing so I concluded I would submit the matter to my good friend Reasoner, of the Royal Palm Nurseries. Below is his reply:

> *Mr. Root:*—We have several kinds of spineless cactus, all of them descended from *Opuntia ficus-indica* (see page 15 of our catalog), the parent spineless kind from which Mr. Burbank raised seedlings, etc. We sent him original plants about 26 years ago. These hybrids we have are Government hybrids, and you can get slabs of them when you return, without expense. I do not think much of these for either forage or fruit *for Florida.* Para grass beats the cactus certainly 1000 per cent for stock food, growing anywhere in Florida on either wet or dry soils. The cactus fruit is insipid, not to be compared with dozens of fine fruits already produced in abundance here. The only way I ever saw this fruit put up in palatable form was stewed with a bit of lemon, and sugar.
>
> For arid conditions in Texas and other warm parts of the Western States it may be an excellent thing, as the soils there are largely too dry to produce grass or ordinary forms of forage. This cactus grows in unprotected places around Southern Florida, and we have never yet seen any of it eaten by cattle or hogs. They would have to be educated. Mr. Hall, or, rather, Mr. W. B. Collins and Mr. W. B. Thompson, have large specimens of it here near us.
>
> Oneco, Fla., Aug. 27. E. N. REASONER.

The above reminds me that right in the neighborhood of the Reasoner Brothers' nurseries there is a cactus plant growing in a dooryard, as high as my head. It has not a sign of a spine on it—perfectly smooth. The owner informed me it was taken from the woods. Now, the Burbank cactus may be superior to this; but if one acre of cactus will produce *eight times* as much food as alfalfa, and is easy to grow, why did not our experiment stations discover it years ago, and give it to the world? I am informed the Department of Agriculture has already put out a bulletin on cacti, but I have not yet seen it. The circular mentioned above seems to indicate that it can be grown almost anywhere. In fact, I looked the circular all over to see if there is any reference in regard to its power to withstand frost. Along with the printed matter came the following:

> The cuttings consist of leaves called slabs. These weigh from two to twelve pounds. It is always best to plant a whole slab. While those that are divided will sometimes grow fairly well, it is not economy to divide them.
>
> The only cost to spineless cactus is the cost of plants and planting—no cultivating, irrigating, nor thorn-burning required. Spineless cactus is also a fine feed for poultry, and a great egg-producer.

Here's a letter that came with the above:

> *Mr. A. I. Root.*—Spineless cactus is producing at the rate of 200 tons to the acre on cut-over pine land near Mobile, Ala. We anticipate opening an office in Florida, and should be pleased to receive your order for any amount you might wish.
>
> SPINELESS CACTUS, INC.,
>
> Mobile, Ala., Aug. 21. S. T. DAVIS.

After the above was put in type we found the following in the *Florida Grower:*

SPINELESS CACTUS.

Welaka, Fla., Sept. 3.—I should like to see something in the *Grower* about the spineless cactus as a forage crop in Florida. They seem to be using it to some extent in the West; and if it will grow on their arid land there it certainly should here.

D. C. M.

Note.—So many very extravagant claims are being made for spineless cactus that we cannot endorse that we have kept rather quiet, and prefer to await developments. We were in California at the time when enthusiasts were claiming that this forage plant would revolutionize the cattle industry. This was eight years ago; but we hear less about it now than we did at that time. We will investigate further.—Editor *Florida Grower.*

SWEET CLOVER COMING TO ITS OWN.

We take pleasure in giving the following, which we clip from the *Ohio Farmer* for Aug. 15:

EXPERIENCE WITH SWEET CLOVER.

Having read much of late both for and against the use of sweet clover, I ask your permission to give our experience. About the second week in March, 1913, we broadcasted 360 lbs. of sweet-clover seed on 28 acres of wheat. We neglected to tell our tenant that we had supplied sweet clover instead of little red, and when we did tell him he was rather hot under the collar. I did not hold this against him, as the plant has always had a bad reputation around here.

Numerous parties were kind enough to tell him how he had filled the soil with a noxious weed that he would never get rid of. This naturally did not help matters, but, being a sensible man, he resolved to make the best of it, and the dubious ones were busy collecting all the evil things they ever heard (or imagined) about this "terrible weed."

Well, to make a long story short, after harvest we found that we did not have an even stand of our clover; but before winter set in things did not look so bad, and what we had was from 12 to 18 inches high. This growth was not clipped.

This ground was not plowed until toward the last of April, and the clover had a root growth of from 2 to 3½ feet, and from one-half to one inch in diameter, just below the crown. This meant hard work for five or six horses to the double-disk plow. The corn was planted at about the usual time, and received four or five cultivations, being laid by when hip high. It really should have had another cultivation, at least with the one-horse cultivator.

Now as to results: We have had several very hot dry spells when other corn would shrivel and show lack of moisture. At such times our corn was fresh and green as though it had received a good soaking rain. We feel to-day, and have felt right along, that we have one of the very best fields of corn to be seen in Miami County. And the best of it is, that the very ones who condemned sweet clover at first now say that it is by far the best green manure they know of for corn. Both our tenant and ourselves are glad to give the clover the credit, and we can't very well help it when we look at other fields with just as good or better soil, and see corn half or two-thirds as large, and uneven as to stand. With a fair trial I think you will find that, as a moisture and nitrogen provider, sweet clover has no equal.—W. D. Ashton.

SOMETHING MORE ABOUT SWEET CLOVER.

Through the kindness of our veteran friend M. M. Baldridge, of St. Charles, Ill., we give the following clipping from *Better Farming:*

SWEET CLOVER HAS THE STAGE

For the past two years increasing attention has been given to sweet clover as a forage plant. County agricultural agents in several States last year gave some attention to it in an experimental way. Those in Kansas and South Dakota were particularly active, and the results were so satisfactory that the area seeded this year has been enormously increased. W. E. Watkins, Allen County, Kan., reports that more than 2000 acres were seeded in that county this year. The interest in this plant has been primarily as a soil ameliorant. It is establishing itself in a very promising way as a forage plant. Last year Mr. Mosher, Clinton County, Iowa, conducted an excursion to a farm on which is grown annually 60 to 100 acres of sweet clover for hay and pasture on land worth more than $100 per acre. On June 9 and 10 this year Mr. Bishop and Mr. Grannis, two Illinois county agents, joined in an excursion to a 300-acre sweet-clover farm in Ogle County, Illinois. One county sent 21 automobiles with 109 farmers, representing 25 townships. A total of 45 automobiles made up the train. Among the interesting things done on the farm visited is the pasturing of 60 head of cattle on 40 acres of sweet clover. The clover is also used successfully as ensilage.

Sweet clover will succeed in situations so adverse that other plants will hardly grow in them.

HORSERADISH—HOW TO PUT IT UP FOR THE MARKET.

Friend Root:—As for "Horseradish, Christianity," etc. (see June 15, p. 478), I am very fond of horseradish; and if there is any profit in selling it I should like to know the best way of doing it. What kind of machinery is needed? How shall I put it up? In fact, I want all the information you can give an old man with ten little ones to care for.

T. J. Chamberlain, Sr.

Cannonsburg, Miss., July 15.

My good friend, the first thing you want to do is to get some nice horseradish roots. It needs very rich ground, and it will stand lots of water. I have seen horseradish growing in the greatest luxuriance on the borders of swamps; but nice roots can be grown in almost any garden if you make the soil rich enough and give the plants plenty of water. Cuttings are generally made of the little roots about the size of a leadpencil or smaller, cut into three or four inch lengths. When you begin digging the roots, and trimming them, you will get plenty of the best size for planting out.

Our grinder was a home-made affair. We removed the saw from one of our buzz-saw tables and screwed on a block of wood. This block was turned into a true cylinder, perhaps 4 inches long and about the same in diameter. Then a cylinder made of tin was slipped over this cylinder of wood with one end projecting. It was slipped on to the wooden cylinder just far enough to fasten it with screws. The other end was left open. Now punch this cylinder full of holes so as to leave the burr edge out, just like the surface of a common horseradish-grater. Now, if you run this grater or cylinder at a good speed, and hold the roots against the outside, it will grate them up very fast, and the grated radish falls into a pan underneath. You had better have your machine out in the open air, or the fumes of the radish may choke you.

Now, to put it up so it will *keep*, you must have some of the best white-wine vinegar. We tried cider vinegar, but it would spoil unless used up very soon. We put it up in 1-lb. honey-jars. If you go into the marketplaces in almost any large city you will see how horseradish-stands are operated. It sells best to grate it up right in sight of your customers, because then they know it is fresh. The machine can be turned with a crank, but it is slower work. When properly managed it is a profitable rural industry, and I believe horseradish is considered a healthful and wholesome condiment.

BEES AND CHERRIES, ETC.

On page 565 of our July 15th issue I made mention that people in our locality were wondering what agency brought about such an enormous crop of beautiful large fine cherries; but it did not occur to me then that our eleven apiaries scattered over this neighborhood, comprising toward one thousand colonies of bees, had any thing to do with it. Well, if you will read the following, which I clip from the *Rural Home*, you will see the connection between plenty of cherries and bee culture.

BEES AND FRUIT.

Honey-producing is only one of the missions of the bees. Indeed, for actual profit the honey is but a minor item.

Some years ago I moved to a small place up the Hudson River. I wanted a bee-farm, and selected for that purpose a spot among apple, cherry, and plum trees, some of which had never borne fruit, others none for years past. My landlord told me I might cut down certain trees, as they were worthless, as he intended putting on some fine nursery stock.

Being busy, I did not cut the trees down. They blossomed freely, and, of course, we paid no further heed to them than to break blossoms by the armfuls when we wanted floral decorations.

The cherry trees were, much to the owner's astonishment, loaded with very large, perfect fruit. He could not understand it. Such a thing had not happened for years.

Early in the autumn, while waiting for a swarm of bees to settle, I observed a number of fine apples upon one of the smaller condemned trees. When the landlord's attention was called to them he was completely mystified, and called in his neighbors to see the wonder. Later we gathered from this tree nearly a barrel of finest fall pippins ever seen in that vicinity.

No argument would convince the man that "them pesky bees" had any thing to do with the yield of the fruit on the place. He insisted that some sort of fertilizer must have been used.

Since that time I have demonstrated by scores of experiments that trees which had for many seasons borne little good fruit, or possibly none at all, have been brought up to a high standard of productiveness by the presence of bees. They carried the pollen, fertilized the blossoms, and a beautiful harvest was the result.

Regardless of the honey crop, every fruit-grower should have a few colonies of bees. If when the blossom season is past there is so little nectar in the mid-season flowers that the bees must be fed, it is a decided economy to feed them, as in cases where a strict account has been kept the cash value of orchard products alone has been doubled by their assistance.

AN UNBIASED EXPERT'S OPINION ON SPRAYING.

The enclosed clipping, taken from Green's *Fruit Grower*, comes from Prof. Van Deman, a horticulturist who is well known in the United States as well as in other countries as one of the best horticulturists in any land. Stress should be put on what he says about spraying during the blooming period not only poisoning bees, but also because it injures the delicate floral organs and destroys them; and to spray the bloom is too early for the codling moth. I have made a study of this subject for many years; and from my observation, and from what all the leading horticulturists have said to me on this subject, Prof. Van Deman confirms what all these have said, and reiterates their experience.

Mexico, Mo., May 21. J. W. Rouse.

SPRAYING AND BEES.

Prof. Van Deman:—I have a place in the country, and have put out about two acres of apples, and had intended to put out about five acres more. But a friend of mine in North Acton, who netted $6000 off his apple orchard in 1911, writes me, "I had a fine crop of apples that year. Since then the San Jose scale has made its appearance on my trees and other orchards in this neighborhood, and the necessary spraying has killed off the bees to such an extent that their work of fertilizing the apple-blossom is sadly missed."

This is a new one—to me. Can you tell me how other orchardists circumvent this difficulty?

Albert W. Dennin.

Reply:—The facts about spraying for various insects and fungus diseases are so poorly understood, and so blunderingly carried out in the work that is done, that harm rather than benefit sometimes is the result. Honeybees and other such insects are very useful or even essential in pollinating the bloom of fruit-trees, plants, and vines, and it is both injurious and needless to kill them by poisonous spraying, except to a very limited extent. The lime-sulphur spray is not poisonous to bees, for it is applied nearly always when the trees are in a dormant condition and no bloom open. When arsenical preparations are used it should not be while the flowers are open, for two reasons. The delicate floral organs are injured by the poison, and the bees, in seeking for honey, get some of it and are killed. Moreover, the object of the spraying is to kill insects that sting or enter the fruit; and until it has set and begun to grow it is useless to spray. Sensible, intelligent spraying is all right, and rarely does much harm to honeybees or other cross-pollinating insects; but useless and harmful spraying is folly. More intelligent and faithful spraying is what is needed to make more and better fruit and to save the bees.

A HAND CULTIVATOR TO BE PULLED BY A GASOLINE MOTOR, ETC.

I have in my hand descriptive circulars from the Parker Motor Plow Co., Bedford, Va., with photographic illustrations of not only a gasoline-cultivator but of gasoline-plows as well. The machine that is designed for plowing is rated as 2½ horse power, and will do the work of a team, and requires no feed when it is not working. The company are not yet ready to put a price on the machines and offer them for sale; but they write us that at an early date they will give us full information. A photograph shows the machine in actual operation. I think the cultivator would answer my needs nicely; but the price may be an obstacle just now. I feel sure something of this sort is coming in the near future. If it can be managed so the outfit will not cost more than the average horse, strong enough to do ordinary cultivating, I think it will come quickly into use from the one fact that it needs no feed when it is not working. Of course the matter of keeping such a machine in repair will have something to do with it.

One important item in regard to this machine I came pretty near forgetting. It is this: When you want to go away you do not have to hire a man to look after your horse. For instance, if you spend your winters in Florida, when you are ready to go back north the machine can be put in shelter and locked up, and it will be all right when you get back. It is true that somebody might volunteer to keep the horse and furnish feed for the work he might get out of it; but such an arrangement is not always satisfactory.

HEALTH NOTES

GALLSTONES AND OTHER TROUBLES WITH THE URINARY ORGANS.

Some of our readers will doubtless think the following belongs rather to a medical journal; but as it in fact concerns elderly people mostly, the younger ones can, if they choose, skip it. The kind letter below introduces the matter:

> I read your article, "Taking Care of These Bodies," in GLEANINGS for Nov. 15. In fact, the "Homes" section is the first I turn to, as, in addition to finding them very instructive and so on, I seem to know the writer. The article in question is all it should be; but it contains one serious error which I think it my duty to call attention to. The second sentence on page 824 says, "He did not have to get up once in a night, as a rule." Some years ago I was seriously troubled with gallstones. My doctor, an exceedingly able man, inquired, "Do you get up during the night to ease yourself?" I said, "Never." He replied, "You must do so—once always, as, during the night, the salts in the urine solidify and form the basis of these stones." For years I have been free, and I think this simple getting-up once or perhaps twice during the night has been a benefit, and therefore should be encouraged.
>
> I have a very strong antipathy to publicity, so please oblige me by withholding my name and address.

My good friend, I am very glad indeed that you have taken up this matter, for it has been a long time on my mind. I have much reason to think you and your doctor are exactly right about it. Although it is, without question, quite desirable to have the digestive apparatus, kidneys, liver, bladder, doing their work so thoroughly and naturally that one does not have to get up in the night at all, I think most elderly people have come to the conclusion that the general health is conserved by going to the water-closet much oftener than they did in youth or middle age.

Let me again go over the ground that we have discussed pretty thoroughly already. Years ago, while in the jewelry business, especially when I did not have a clerk to take my place, I often put off nature's call because I could not well excuse myself from customers. This finally made trouble. Those of our readers who "keep store," or at least many of them, will understand this. Well, the result was, finally, that I not only had to get up in the night, but sometimes several times. Of course the diet as well as outdoor exercise has much to do with it. Years ago, in Dr. Chase's recipe-book a man told about finding that crabapple cider gave him great relief from such urinary trouble. I tried it on a small scale, and found it of so much help that I gathered several bushels of crabapples—the wild sour kind—and kept the cider by scalding and bottling it so as to have it all winter. It certainly is a splendid medicine. In later years I have often spoken of grapefruit in the same way. Just as soon as I get down to Florida, where I can have plenty of grapefruit, I sleep soundly all night without thinking of getting up. Certain acid fruits seem to have been intended by the Almighty for correcting these troubles. The sour Florida orange that grows almost wild answers the same purpose as the grapefruit. Cherries not too tart act in much the same way; also the nice ripe apples I have so frequently mentioned; and of late I have greatly enjoyed common currants, especially when they are dead ripe. When hot weather comes on, and there is a tendency toward what is called "summer complaint" when your mouth tastes bad and even a good drink of water does not "hit the spot," try a small handful of currants, dead ripe; and if it does not sweeten and refresh your whole system you are different from myself. I have just been wondering why we cannot have currant juice put up in little bottles just as we have grape juice. I would pay a big price for a little currant juice—no sugar nor any thing else with it—put up in this way. Somebody may suggest lemons, and lemons are really a Godsend for many such troubles; but the acid, I find, is too harsh for my digestion unless I put in sugar; and cane sugar is quite sure to disagree with me. Very likely some lemonade sweetened with *honey* might come pretty near grapefruit.

Now to the point our good brother makes. When I do not have grapefruit or currants I often have troubled dreams, and finally wake up feeling exceedingly uncomfortable, and with a suggestion that the blood in my veins is poisoned with impurities or something else. I do not know any better way to express it. Now, at such times there seems to be a very strong disposition against getting up and going to the water-closet; and I often just turn over, being only half awake, and go to sleep again. More troubled dreams and more distress follow, even if I am only half asleep. If it is quite cold weather at such times I feel a strong aversion toward getting out of a warm bed into the cold air, for you know we always sleep with doors and windows wide open (well screened, of course). Well, before I received the above kind letter I made up my mind that it must be injurious to *yield* to the lazy feeling, instead of getting up right promptly as soon as nature gives warning; and since I have practiced jumping out of bed at once, be it one, two, or three o'clock, and going to the water-closet, my health has visibly improved. You see it is nature's call, or *warning,* perhaps I might say, that the impurities eliminated by the kidneys should be gotten out of the system as speedily as possible. Very likely if the digestive apparatus were in proper condition there would be no such impurities to collect and endanger the health; but if they do collect, get them out of the system as soon as possible. A neglect to do this will, as the doctor states above, result in gallstones, inflammation of the bladder, and no end of trouble. After getting up in the night, as I have described, letting nature have her way, then rinsing my mouth with cold water, and finally taking a good drink, and at the same time giving my arms, limbs, and chest a good brisk rubbing to start up the sluggish circulation, I go back to bed and get the most refreshing sleep of the night. I grant you that a better way would be to avoid the necessity of getting up, say by the use of grapefruit, crabapple cider, or something of that kind. But when you *do realize* that your circulation is impaired, shake off the lazy, sleepy feeling and spring out of bed at once. Now, some of the good family physicians among our readers may think the above not strictly orthodox; and if so I should be glad indeed to receive their criticism.

My friend W. P. Root suggests right here in my dictation that the above depends largely on what we eat and drink after supper, or just before going to bed. If one "fills up" on watermelon, for instance, during the evening he may *expect* disturbed sleep. And this reminds me that I have neglected to say in the above that nothing passes *my* lips except pure water after my fruit supper between four and five o'clock and bedtime.

By the way, here is something more in regard to the same matter. Please notice particularly the closing sentence.

> *Mr. A. I. Root:*—I wish to congraulate you on the (to me) sensible talk you gave in Our Homes for Nov. 15, 1913, about taking care of these bodies of ours. I believe almost wholly with you on that subject, and think it would be a good idea for that article to be printed at least twice a year; in fact, keep it before the people—fresh air, plenty of exercise, and good wholesome food and warm clothing. This goes a long way toward keeping us in good health; also attending to the slightest call of nature. That is a thing that is badly abused through real or fancied modesty.
>
> Derby, Nev. H. E. ORDWAY.

To have every thing plain without any risk of misunderstanding, permit me to say in closing that all the above refers only to emptying the bladder. In regard to a movement of the bowels, *my* health is very much better when they move only once a day, say an hour or two after my morning meal. Terry and the Battle Creek folks, you may notice, recommend two movements of the bowels, or, better still, *three.* I suppose we are not all alike in this respect, and each one must decide for himself; but I would stoutly object to the daily use of physics or hot-water enemas that were so much talked about years ago. The hot-water enemas are all right in case of an emergency, but I am sure they are *not* right for daily use nor to use too frequently.

LIVING TO BE OVER 100 YEARS OLD.

In Terry's book, "How to Keep Well and Live Long," he mentions in two different places a Captain Diamond who was over 100 years old at the time the book was published. One of our readers sends me the following clipping from a newspaper:

> SAN FRANCISCO, Aug. 15.—Capt. Goddard Ezekiel D. Diamond, who, according to his own statements and evidence, was 118 years old, died here late last night.

If any of our readers in the vicinity can give us any further particulars in regard to this unusual longevity, we shall be very glad to get it.

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Gleanings in Bee Culture

VOL. XLII. NOV. 1, 1914, NO. 21.

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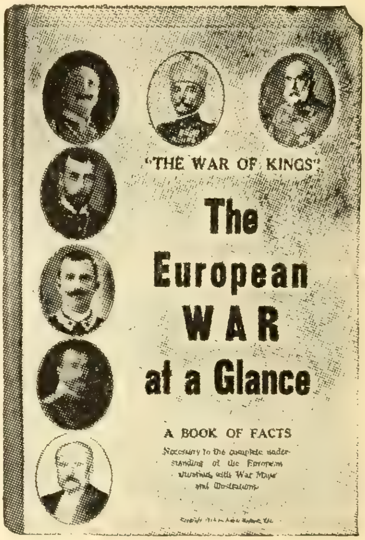

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Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio

A. I. Root, Editor Home Department
H. H. Root, Managing Editor
E. R. Root, Editor
J. T. Calvert, Business Manager
A. L. Boyden, Advertising Manager

Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLII. NOVEMBER 1, 1914 NO. 21

EDITORIALS

Honey Exhibit at Connecticut Fair

Particular attention is called to the report of the honey and bee department at the Hartford, Ct., fair, by E. G. Carr, page 846. There may be larger exhibits, but we do not know of a State in the Union where the beekeepers have a better opportunity than in Connecticut; and in this connection it should be observed that some one deserves a great deal of credit in working out these plans and in making possible the offering of prizes to the extent of $500.

Exhibits like this one at fairs go a long way toward creating that favorable impression toward honey that is so necessary for its universal use by every family. After all, it is largely a matter of publicity. Many people do not eat honey, simply because it is not brought before them, and they do not think about it.

Our Cover Picture; the Windmill of Olden Days

Our cover picture for this issue, as explained under Our Homes, p. 872, shows the original windmill which A. I. Root used as his only source of power to turn the wheels of his little beehive shop back in the days when Gleanings was in its infancy. As indicated by the picture, the mill is now owned by a farmer living near Medina and is at rest after its long years of useful activity.

It was a warm day in August when this photo was taken; and as A. I. Root himself stood before the camera and looked toward the old mill, we observed that his eyes would constantly seek the ground at his feet. It was hard for him to believe that nearly half a century had passed, and no doubt he saw again this wonderful machine of the air, resplendent in its new shining paint, when it was the realization of his fondest dreams—when it harnessed the wind and worked at his bidding. If he had voiced his thoughts he would probably have said, "Can it be that 40—yes, almost 50—years have come and gone?"

The years *have* come and gone. The mill once so strong and powerful has been idle for many years, while a newer one near by does the work. But A. I. Root is as busy as at any time in his life; and while his work has changed, and he has given up in a measure much of the real responsibility that he once bore alone, he is always active, as one would find who tried to follow him during any one of his never idle days. For him there will not come a time when, like this windmill, he will be of no more use to the world. His call to a newer, larger service in the other world will come as an anticipated interruption to some work here not yet finished.

A Quicker and Simpler Way of Making Chaff Division-boards

Practically all who have tried chaff division-boards agree that they are invaluable for early spring breeding and for preparing a colony for winter; but the great objection to their use is the difficulty in putting together. They are quite expensive if bought already put together, and more expensive still if bought in the flat and put together afterward, for it takes pretty rapid work to assemble even three of them in an hour by the old plan, which consisted of tacking a strip of canvas around the frame and then stuffing it through slots cut in the bottom-bar. Besides the nailing of the wooden part, fifty small tacks had to be driven through the canvas into the frame, which is not a short job for even a rapid workman; and then the stuffing outside the two end-bars and under the bottom-bar through the slots required at least ten minutes more. We have recently made up a large lot of these division-boards for our own use by a little different plan, and we have found that a large amount of time is saved, and that the finished board has several important advantages over the old type.

The drawing on page 866 gives the whole plan in a nutshell. Drive six nails in a plain bottom-bar, as shown in Fig. 1, and then nail on the upright as in Fig. 2. The side boards, Fig. 3, are of such a length that they lap over outside the end-bars and bottom-bar about ¼ inch. After nailing on the side bars the space between may be filled with packing in the usual way. Secure a strip of canvas the right length and width. We use a piece 4½ in. wide and 42¼ in. long. Sew the edges together on a sewing-machine, making a long canvas tube. A large number of these may be sewed in a very few minutes. Fill these with sawdust through a large funnel, as in Fig. 4, the lower end of the tube being held shut by a weight placed over it on the floor. Stretch the tube around the frame, Fig. 5, letting it lie snugly in the groove formed by the projection of the side boards. Fold the unstuffed ends of the tube neatly over the top of the frame and secure by nailing on the top-bar, Fig. 6. One or two nails should be driven through the cushion up into the bottom-bar to prevent sagging in the middle.

The packing in the old-style division-board often matted down so that the cushion effect was all but lost, the peculiar advantage of the padded end then being lost. By this new construction it is possible to work the padding with the fingers so that it is again soft and flexible. We have found that these division-boards fit the hive much better, but they are no harder to remove.

What Makes Bees, that are Normally Gentle, Cross?

In our last issue, page 813, our old correspondent, J. D. Fooshe, who has not written much for Gleanings of late, but who has had a very wide experience, writes on this subject. When he says that bees are most erratic creatures in the matter of deportment on different days he is absolutely right. Of course, old experienced beekeepers know that bees are crosser during the chilly hours of the morning or night than they are during the middle of the day when it is warm. Beginners learn this to their sorrow sometimes. But the thing that we have noticed that will make bees crosser than almost any thing else is the sudden cessation of a heavy honey-flow or an abrupt stoppage of the supply of honey, or syrup, in a robbing rampage. We commonly say that robbing makes bees cross. There will be no trouble so long as the supply of food holds out; but just the minute the owner removes the supply, there is something doing. The same principle operates in precisely the same way during a natural honey-flow from basswood or buckwheat that are both heavy yielders of nectar. The cessation may be due to a rain or to the natural closing of the flow. It is a well-known fact that bees are apt to be a little cross at the end of a buckwheat or basswood flow—more so than from the closing of clover which is more gradual.

Some five or six years ago, about the crossest bunch of bees we ever struck, that previously had been as quiet as kittens, and could be bumped around and handled in all kinds of rough ways, were some fine Italians at our Harrington yard. At that time, about ten or eleven o'clock, there would be a heavy roar of bees on honey-dew. In the mean time the sun would dry this honey-dew down to a point where the bees could not get it, and then there was trouble. The dew of the next morning would loosen it up again, when the bees would be working on it as strong as ever; but in about half an hour after the honey-dew had dried up, when there was no more to be had, the little rascals would be, to put it mildly, ugly. We attempted to go through a hive to see how much of the black stuff they were gathering. No, sir, 'e. They let us know we should mind our own business and let *them* severely alone. They would rush out to attack, literally by the hundreds, when we opened the hive. Smoke was worse than useless. Once or twice we beat an inglorious retreat; for a hundred bees sending their stings into the hands and through the trousers was more than we could stand. The minute we came to renew the fray with great clouds of smoke they would rush out as furiously as ever. Nor was this condition confined to any particular hive.

If any one had visited this yard at that time he would have naturally concluded that we had the crossest strain of bees that ever was; but in a few days after the honey-dew flow was over, they were almost back to their normal—as quiet as kittens.

In trips we have made through the State of New York, when buckwheat was at its height, we have noticed time and time again that bees during the middle of the day were awfully cross. We at one time concluded the buckwheat men did not know what gentle bees were. The reason of the crossness was because the buckwheat stopped along about nine or ten o'clock in the morning, and began again in the afternoon. This sudden stoppage leaves the bees in bad humor, as it did in the case of the honey-dew. Again, we have noticed that, when there are comparatively few bees, and large areas of buckwheat, so that they can gather nectar all day, they are comparatively quiet.

Another thing that will make bees cross is the presence of snakes or skunks. The latter will pry around the entrances of the hives at night. Of course the bees rush out and attack their enemy. The next day, when the owner of the bees comes around he discovers there is "something wrong." If he detects the familiar skunk odor he can readily guess the reason.

Elementary Biology, Animal and Human.*

UNDOUBTEDLY boys and girls should be taught the laws of health and the importance of the conservation of our natural resources. The authors of this book state that its purpose is to discuss the economic relations of animals to the human race, and to teach how to care for that wonderful machine, the human body, and to make it as efficient as possible in the attainment of success and happiness and the upbuilding of character; and they are confident that no biological knowledge is of more worth to high-school students. The book is in line with a growing demand that our secondary schools furnish a practical education which will be useful in the affairs of everyday life, and that less time be given to studies which are chiefly of value for culture and discipline.

"Elementary Biology, Animal and Human," consists of two books, separately paged, but bound in one volume. The first treats of applied zoology, and the second of human physiology and practical hygiene. Great care has been taken to secure accuracy, and a large part of the text has been submitted to well-known authorities and specialists—the chapter on insects to Messrs. Felt, Root, and Herrick; the chapter on birds and fishes to Dr. Hornaday; the chapter on foods to the late Prof. Atwater, etc. Passing over the lower orders of animals the authors take up at once insects which are beneficial and injurious to mankind. A brief account is given of the life histories of butterflies and moths, grasshoppers, mosquitoes, and flies, and of the ways in which they can be controlled or exterminated. The point of view of the authors is well shown by the fact that only two pages and a plate of figures are given to the structure of mosquitoes in their different stages, while the intensely interesting story of the relation of certain species to malaria and yellow fever occupies ten pages. It is a pleasure to record that the treatment of the economy of the honeybee is modern and free from error; for many of the newest scientific works, as Buttel-Reepen has remarked, contain defective assertions. But the statement on flower pollination, based on the authority of Prof. Hodge, that for all practical purposes the honeybee is sufficient, should be modified. We most heartily commend the vigorous protest against the wicked and reckless destruction of game and song birds and food fishes; it would seem as though this incredible waste and cruelty had only to be generally known to be promptly checked.

One of the most valuable chapters is that on bacteria and the white blood corpuscles, reprinted in substance from the authors' "Plant Biology." Among these minute plant organisms (bacteria) are found the best friends and worse foes of the human race. In the absence of the forms producing decomposition the earth would soon become devoid of life; while other kinds are the dreaded causes of those terrible diseases tuberculosis, diphtheria, and typhoid fever. It would likewise be impossible to give a better illustration of the importance of the investigation of nature for its own sake. Bacteria were at first not only regarded as of no practical importance, but their study was looked upon as reprehensible. There is a story that the Dutch naturalist Leeuwenhoek, who lived in the seventeenth century, and who is said to have been one of the first to figure bacteria, was told that, if the Creator had designed microscopic organisms to be known, he would have made them large enough to be seen.

The effects of stimulants and narcotics are fairly and conservatively discussed, and their use, even in moderation, condemned in no uncertain terms. In our judgment the evils of intemperance can in no way be so effectually combated as through adequate instruction in the public schools. The chapter on foods and their uses is timely, for the numerous books on food and nutrition which have recently appeared show that this topic is attracting much immediate attention. To those of our readers desiring a clear and concise presentation of the practical biological questions mentioned above we confidently recommend this book; but those desiring a broader view of zoology, or of the classification, distribution, and development of the animal kingdom, should, of course, procure some other work.

The volume is entertainingly written, and well printed and illustrated. It is intended to be used in connection with a previous work by the same authors entitled "Plant Biology," the entire course occupying one year. Full directions for numerous laboratory exercises are supplied, and a list of apparatus, chemicals, books, charts, and other accessories suggested.

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* Elementary Biology, Animal and Human, by James Edward Peabody, A. M., and Arthur Ellsworth Hunt, Ph.B.; 12mo, pp. xiv.—194—212. New York. The Macmillan Co., 1912.

STRAY STRAWS

Dr. C. C. Miller **Marengo, Ill.**

"Honey-comb" seems still to be used in England where we use "combhoney," just as it is in the Bible. In *British Bee Journal,* p. 276, it is said, "Italians will not eat honey-comb."

A. I. Root, you think a gasoline motor has the advantage over a horse for cultivating that it needs no feed while not working, p. 831. It also has the important advantage that it doesn't step on plants.

Dee-lighted, Mr. Editor, that you are getting interested in bee-botany, and hope it will develop into a great love for flowers in general. You'll live longer, have more to live for, and be better to live with.

By way of postscript to the word of the editor, p. 793, urging a stout box to send samples of foul brood, I may add that if you write to Dr. Phillips he will send a tin box in which you may send the sample, and also a frank to pay postage.

Speaking of European foul brood, p. 662, J. L. Byer says: "Universal requeening with good Italian stock seems to be about the only remedy for it." Many will understand that to mean that such requeening is all that is needed to get rid of the disease. I don't believe that friend Byer really means that. But in most cases it will be a very important help.

Otto Dengg, *Deutsche Imker,* 165, commends the plan of raising the brood to the second story and filling the lower story with frames of foundation, and credits the plan to Preuss, of Potsdam, who was then followed by Stachelhausen and Alexander in America. But was not the plan given by G. W. Demaree, Christiansburg, Ky., before Stachelhausen and Alexander appeared on the stage?

Louis Scholl figures $5.00 rent for locating an apiary of 50 colonies, p. 795, and twice as much for an apiary of 100. That would be fair if the rent of the land were the only thing considered. But generally the actual land rent is a minor consideration, and the farmer would about as soon have 100 colonies on his place as 50. It is, however, getting more and more that the farmer considers it a favor, and wants no rent.

"Feeding when robbing is bad," p. 745, recalls a safe and easy way in which I've fed tons. Put Miller feeders on the hives. Leave them open all over the apiary if you like. Bees don't rob dry feeders. Pour dry sugar into them, still leaving them open. Bees don't rob dry sugar. Go around and pour water, cold or hot, into each feeder. You'll have plenty of time to cover up before the sugar and water becomes robable syrup.

"I have never believed a farm complete without a few colonies of bees carefully kept in modern hives," says Louis H. Scholl, p. 707. I sympathize with that view, and yet it's more poetical than practical. That would mean each farmer a *thorough beekeeper,* with no specialists, for there would be no room for specialists. Wouldn't it cost less to have enough specialists to gather all the honey than to have every farmer trained to keep bees "carefully"?

To get bees out of supers of sections, the easy way is to smoke down most of the bees before taking off, then pile up the supers 10 to 15 high and put a Miller escape on top. But sometimes they are stubborn about coming out, and then the surer way is to replace the escape with a hive-body containing a frame of brood, or even honey, covering over. Then empty out the bees two or three times; or if you have a colony that needs strengthening there's nothing nicer than to give it these bees.

We are told that you can spot laying workers by eggs laid irregularly and more than one egg in a cell. You can't—always. I've known laying workers, when they had plenty of good worker-cells, *and no others,* to do work that you couldn't tell from that of any good queen. But if they have drone-cells they'll double up in them, and they like queen-cells still better. [There are exceptions to all rules in beedom. In addition to what you describe, a good laying queen will sometimes lay two or three eggs in a cell in baby nuclei. The reason is apparent—she does not have room.—Ed.]

J. E. Crane says, p. 622, that with him superseding takes place at all seasons, and quotes me as saying "superseding practically always takes place after swarming is all over." That sounds rather wide apart, but I suspect we're not so very far apart. Superseding also takes place with me at all seasons, but so little at other times that it's *practically* all after-swarming. Note, too, that I don't say "after all swarming is over," but it's after swarming is all over with each colony. Swarming may be all over with one colony in June, and with another in August or September. Then there are colonies that will supersede their queen with no thought of swarming, and some whose superseding is delayed because queen-cells have been killed, so that superseding may be from June till September.

Arthur C. Miller, p. 718, quotes me as saying bees don't mix pollen or honey in the same cell. Please play fair, Arthur, and read the whole Straw through. I quoted what I think is the general belief, and then said it was *not* always true. But it's the rule with rare exceptions—here. I suspect it may be different with you, and you have incidentally given the reason. You say honeys are perhaps always mixed "when the bees of a colony are working on more than one source." That's just it. Here, some one source of nectar has the preference, and that source is nearly always plentiful enough so that bees rarely work "on more than one source." Your bees may be obliged to work on different plants at the same time, in which case it should be the rule, and not the exception, that cells contain mixtures.

There has been some tendency to say "extract" instead of "extracted." Now it seems to have the sanction of the U. S. Government and Gleanings, p. 748. It is incorrect; yet it has the advantage of being shorter, and use may make it correct. But I'm afraid of the effect on the popular mind. Will not the public think of "extract of honey," and class it with "extract of coffee" and other things that are not genuine? [The word "extract" must have been a misprint in the government bulletin. Our printers followed this spelling with singular fidelity—that is to say, we printed it just as it was in the bulletin. In going over the bulletin elsewhere we find the word "extracted" in full. The abbreviated form would be objectionable, as you say, on account of the general public who would naturally construe it as being an extract of honey and not the real article.—Ed.]

For hive-covers "good roofing-papers, if carefully used, will do good service for ten or twelve years," p. 606. I have testimony on that point. Years ago I had two hive-covers from Medina covered with a heavy paper, but not roofing-paper. I think it was Neponset. I was to keep them painted, but never put on a drop of paint. One of them lasted till this year; the other is still good. If you can recall, Mr. Editor, when you began experimenting in that direction, you can tell how old those covers are. I wonder if repapering would not be cheaper than painting. [We have tested out the Neponset paper at our yard, and had practically the same experience that you had. The only objection to it is that it will cut or tear away when metal would not. When hives are piled one on top of the other, these Neponset roofs are likely to suffer damage, especially if the hives contain heavy combs. —Ed.]

In every case where I have tried it, no matter what the condition of the colony, a virgin less than a day old has always been accepted, even with laying workers or a laying queen, although in the latter case she would be killed when a day or two older. But what J. E. Hand says, p. 722, makes me suspicious that there are exceptions, and I'd be glad to know if he or others have had virgins killed when less than a day old. [Yes, we have had virgins killed when less than a day old, although the rule is that up to 24 hours they will be accepted by a queenless colony without any smoking or introducing, providing they do not carry the odors of the fingers of the apiarist, and even then they will generally be accepted. We have made it a rule, when introducing to day-old virgins, to keep the fingers off from them and allow them to run quietly out of the cage down between the combs or into the entrance without opening the hive. —Ed.]

Mr. Editor, I've troubles of my own with two Scotchwomen under the same roof without your letting that Macdonald Scotchman get after me, p. 728. He quotes me as saying, "I don't believe I ever gained by stimulative feeding," and says I'm wrong. Then he comes at me like any other Scotch preacher with his "firstly," "secondly," and "thirdly." Firstly, the immense gain by feeding small lots having a queen, virgin, or cell. Well, I never stimulatively fed such lots, so I couldn't gain in that way, could I, Mac? Secondly—well, there's some chance for a healthy fight on some points in your secondly; but as I never practiced stimulative feeding on a weakling in early summer I don't believe I ever gained by that way. Thirdly, autumn stimulation. I've fed quite a lot in autumn, first and last, but always as nearly in a lump as I could, which can hardly be called stimulative feeding. The only stimulative feeding I ever tried was on full colonies in spring, and I don't believe I ever gained any thing by that; and if I understand you correctly you don't believe I did either, friend Macdonald. And since that is the only stimulative feeding I've done, do you blame me for thinking I never gained by stimulative feeding? But don't for a minute think I don't believe that others have gained, and gained big, by stimulative feeding. But it was in cases where a lack of a natural flow was of such long duration that, without stimulative feeding, breeding would have ceased.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.

CLOSING UP THE HONEY SEASON.

It has been noticed that, every fall, the beemen are prone to leave the packing of their comb honey until an order is received, and then there is such a rush to fill it that less than satisfactory grading of the honey is done. I have seen comb-honey packing given up at the close of one shipment of honey, and then the rush comes on again when the next sale of honey is made. This is all wrong. The honey suffers in preparation; the beekeeper goes to needless expense in getting the honey out quickly, and the buyer has to wait from one to three or four days longer than desired. If a crew of packers can be trained before the rush is on, the honey may all be ready for shipment when the buyers want it, or soon after it is off the hives. The plan of cleaning and packing comb honey at the outyards has its advantages in that the honey generally gets into the shipping-cases sooner than if it is all hauled home and then cleaned and cased.

* * *

EUROPEAN FOUL BROOD IN COLORADO.

European foul brood has been found in Delta Co., Col.; but, so far as known, it is still confined to a small area southwest of Paonia. The district affected is not over three or four miles in diameter, and contains probably 300 colonies, a good proportion of which show the disease. The bees are all a fairly well-marked strain of Italians, but this does not seem to bring about any evidences of immunity.

Requeening with young vigorous Italian queens, and the shaking treatment, is recommended. In the purchase of queens it cannot be too strongly emphasized to buy queens only of breeders who are located in districts known to be free of European foul-brood infection. Destroy the cages and candy with all attendant bees, and more safety will be assured. It cannot be too strongly emphasized that European foul brood is serious, and that its destructive abilities should not be discounted. Every beekeeper who has any diseased brood should send a sample to the Bureau of Entomology, Department of Agriculture, Washington, D. C., for examination.

* * *

NATIONAL CONVENTION IN DENVER.

The West is to have the National convention this coming February, and we hope to welcome the convention in royal western fashion. Colorado has a fine class of honey-producers, and a large delegation will be in Denver for the National. This convention, it is hoped, will draw attendance from the whole Inter-mountain region as well as the rest of the country.

We can promise a large crew of hosts for the visitors; and if the weather and the roads are favorable we will see that the visitors see some of our western apiaries in automobiles. There are many large apiaries within twenty miles of Denver.

I would suggest that all beekeepers who can and will help in the entertainment of this convention write an offer of their assistance to Pres. N. L. Henthorne, of the Colorado State Beekeepers' Association, Platteville, Colo., or write me. Suggestions as to the way in which we can best entertain and care for the convention will be welcome, and are solicited.

The West can promise all visitors the presence of a score and more of specialists who count their apiaries instead of colonies. Every one of them has valuable money-making ideas; and the beekeeper who comes to this convention and goes away not doubly repaid will be at fault in his capacity for absorption of valuable ideas.

* * *

THE HONEY MARKET.

Comb-honey shipments have been going out very promptly, few producers having to wait for satisfactory offers after the honey is packed. By Nov. 1 there will be little comb honey left for the outside market in this State. Western-slope producers are getting $2.75 for No. 1 comb, net weight not less than 12½ oz.; $2.50 for choice, net weight not less than 11 oz.; $2.25 for No. 2, net weight not less than 10 oz. On the eastern slope in Colorado, where carload shipments take the Colorado common points rate, the prices secured range around $3.00 for No. 1; $2.85 for choice, and $2.70 for No. 2.

Extracted honey has sold on the western slope at 6 to 6¼ cts. a pound, although the amount produced of extracted honey is small compared with the comb-honey production. Extracted honey sells locally in eastern Colorado at 7 to 10 cents a pound. Carload lots would not bring above 7 cents.

Sugar has been selling for more than extracted honey in many parts of Colorado. One beekeeper is selling extracted honey at 7 cts. a pound in small lots, and sugar is selling in his town at 9 pounds for a dollar. The demand for honey has markedly increased; and if sugar remains high in price, honey will surely reach sugar prices at least.

J. L. Byer, NOTES FROM CANADA Mt. Joy, Ont.

On page 745, Oct. 1, it is said that, with the exception of clover, the honey was about the same as other years. This may be right for Ontario; but please bear in mind that, one year with another, clover is 90 per cent at least of the total white-honey crop of Ontario. This year the clover crop is a total failure in most parts, so that places our yield away down, taking GLEANINGS figures for granted.

* * *

This year we have the unusual experience of a September flow of honey here in Ontario, our north yard having stored considerable from Sept. 11 till Sept. 23, when the weather was so unusually warm for the time of year. Brood-nests had been heavy previous to this flow, and at present the 250 colonies there are literally jammed to the bottom-boards. Much of this late honey came from a variety of asters growing on high lands—having a purple-colored flower. Aster honey has a bad reputation for wintering in northern latitudes, so we naturally shall be a bit uneasy as to the results this coming winter. The honey is light in color and nice in flavor, but is usually a bit light in body as well. What is in the hives seems to be pretty well sealed over, so after all it may do all right. At this late date it would be a big undertaking to extract this honey from the brood-nests and feed sugar, so we are taking chances. As a result, some hundreds of pounds of sugar that we had shipped us was left on our hands; but needless to say it will be easily disposed of.

As to robbing during feeding I have read with some astonishment the item on p. 745, Oct. 1, the experience of our friend in Michigan. Candidly it is a mystery to me why there should be any trouble when feeding sugar syrup. This fall the bulk of our feeding had to be done at the home yard, so I arranged to feed at home in the forenoon and to go to an outyard in the afternoon, alternating the different outyards each afternoon. As already mentioned we have had unusually warm bright weather for the time of year, and bees were just as active as in summer time. But for all this I fed some hundreds of pounds of warm syrup during the forenoons; and, barring one rather amusing incident, I had not the slightest bit of robbing; and although corn-cutting and apple-picking were going on all the time right near the apiary, not a single person or horse was stung. Miller feeders and pails were used, and the only precaution taken was to see that no syrup was spilled over the hives, and that all covers were secure so that no bees could get at feeders from above. The bees in this yard are about 75 per cent Italians, the rest Carniolans and hybrids. Entrances were as they had been all summer; no weak colonies were fed, as it does not pay to winter weak colonies outdoors here, now and then a few nuclei excepted. I have for years fed the bees in just this way, and have yet to have a genuine case of robbing by so doing.

Let me tell of the "amusing incident" referred to a moment ago. No. 8 is a strong Italian colony at the east of the yard, while No. 12 is a similar colony at the west end of the apiary. No. 8 was fed heavily, and a few days later No. 12 was given a large Miller feeder with about 25 pounds of syrup. The colony, while very strong in bees, was one of the lightest in the yard, as about all their honey was in the super. Coming home the evening of the same day this colony had been fed in the forenoon, I noticed that the bees had got under the telescoping gable roof at one corner and were flying in and out freely. As it was quite late in the day, and few bees were flying, I soon found that the bees from No. 8 at the far side of the yard were the thieves. By next morning the feeder on No. 12 was about empty, so I removed it, thinking the bees of No. 8 would get a hot reception if they tried to get in at the entrance. Both colonies were bright Italians. Imagine my surprise when, going into the yard a few hours later, I found that the bees from No. 8 were going in and out of the entrance of No. 12, and no fighting whatever. No other bees were in evidence at all, and there were no cross bees—a case of *peaceable* robbing, if you please. I promptly placed a large feeder on No. 8, giving them more feed than they could possibly store, and awaited results. Next day, imagine my surprise once more to find the bees from No. 12 now working just as hard at No. 8 as No. 8 had been at their hive the day before. More feed was given to No. 12, and for the last week every thing has been quiet. Did the bees from No. 8, when they gained an entrance to the feeder on top of No. 12 acquire the same "colony odor," or what is the explanation? A good friend was present, and can vouch for the truth of this story; but for an explanation we shall have to get some one else to furnish it. During the few days of this mutual robbing, not a cross bee was in evidence; and while I watched carefully, not a single bee seemed to gain entrance to either hive except the ones directly interested in the matter.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

The first rain of the season fell on the night of Oct. 2, and was welcomed by Californians. The amount was not heavy, only half an inch; but the way it freshened up green foliage was pleasing indeed.

* * *

During July and August I had the great pleasure of visiting the old homestead where I spent my boyhood days and acquired my first knowledge of the bee business. Things have changed greatly, and conditions were much different than when I left, nearly twelve years ago. My father and mother, both in their eightieth year, have retired from the farm, being too old to have the cares connected with it. The old woods were still there, and I had the pleasure of finding two bee-trees, thus renewing an old-time sport. The vast acreage of potatoes that was being grown in the Kansas River bottoms in my time has given way largely to alfalfa, the flood in 1903 having almost ruined the land for potato culture. There were few bees in the surrounding country—only a few colonies here and there.

My sister has taken up the bee business in a small way, and I was surprised to find her 25 colonies had nearly 1000 pounds of nice white section honey, for which they had a ready local market at 15 cts. per section. One of the oddest things to me was to find the brood-combs full of very dark inferior honey-dew, yet the section honey which had been gathered later from sweet clover and alfalfa was very pretty and white. In my time, these two sources were not considered, there being so little of either. Considering the very dry season in those parts I feel that she is to be congratulated on her success

It is wonderful how the production of alfalfa has increased all over the eastern portion of Kansas, and also in the west, where irrigation is being taken up. In many sections of the State there are large quantities of seed raised, which is said to be as desirable as that produced in any part of the world. In Douglas County, adjoining the farm on which I lived from 1876 to 1883, there was in 1911 a very large crop of seed produced, which was sold for $1700; yet, so far as I could learn, there were few bees to gather the nectar from the bloom.

* * *

J. E. Crane, page 709, Sept. 15, takes issue with Wesley Foster and myself over our contention that bees when clustered outside of the hive are wasting time. In my comment I had taken Mr. Foster's view of the matter. Now friend Crane says, "Because we see a woman sitting under the shade of a tree by her kitchen door when the mercury is 90 degrees in the shade, it is no sign that she is loafing or wasting time." Not in the least; she is simply adjusting herself to more comfortable conditions—exactly what the bees do when they leave the hive to cluster. If conditions were right in the kitchen the woman would no doubt have remained within to complete her kitchen work; and even if she had to return to the kitchen every time she had shelled a pod of peas, for another, she would, in all probability, have concluded that the additional exercise she was getting would not be conducive to keeping down the heat to a point enjoyed by quietly remaining by the kitchen sink. Langstroth, edition of 1870, page 90, says: "Bees in such weather often leave, almost in a body, the interior of the hive, and cluster on the outside, not merely to escape the close heat within, but to guard their combs against the danger of being dissolved." This is very much in accord with my ideas. The clustering-out of bees is due to a condition not normal, and must disorganize the forces of the hive to an extent that causes a wasting of time. In 1889 I had a colony in a ten-frame single-story Langstroth hive that became crowded, and naturally the bees began to make preparations to relieve the situation by swarming. Quite a large cluster had left the hive and were hanging under the hive-stand, which was about eight inches in height. They had been in this position for a number of days when a swarm issued; but the cluster under the hive-stand was so ignorant of conditions in the hive that they did not get excited at the emerging of the swarm, but quietly held to their cluster, not only until the swarm issued, but for more than 48 hours after, before they returned to the hive. This gave me the impression that they were not in communication with the interior of the hive to an extent that apprised them of the fact that swarming preparations had been completed. They had left the hive as a matter of self-protection, and were only fulfilling that one object, with no other work to perform. I cannot agree that every bee in the cluster outside of the hive is full of nectar, even if nectar is coming in freely, as Mr. Crane says.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

QUEEN INCUBATION.

"Did you notice Dr. Miller's statement, Sept. 15, regarding the incubation of queens in six hours and ten minutes less than fifteen days? How are we to reconcile such with Quinby's sixteen days?"

I must say that Dr. Miller's figures give a shorter time of incubation than I have ever noticed, and, so far as I am conversant, the shortest ever noted by any one when calculating from the laying of the egg to the fully developed queen. That bees perfect queens where brood of all ages is given them, so that some will emerge in as little time as nine days from the time such eggs and larvæ are given to a "broody" colony is a thing that many close observers have proven; but with Dr. Miller's experiment it will be noted that his is from the time the egg was laid, or very nearly so. It used to be calculated that where bees had brood in all stages, they would select such as would give the best of queens, if such selection were left to them entirely. It looked quite reasonable that they should; but experiments have proved the contrary. Perhaps I should modify that a little. Bees raising queens under the swarming influence, or where a supersedure of queen is planned, do this while the old queen is present with them; consequently begin with the egg as Dr. Miller's bees did; but where the queen is taken from a colony, or queenless bees are made to start queen-cells from brood given, the case is altogether different. The trouble is that, through their eagnerness to get a queen, they generally err by selecting one or more larvæ for the purpose that are too old to produce the best queens; while, later, after this eagerness subsides a little they will take larvæ young enough to give good queens. But through older larvæ being taken first, the queens from such emerge first, so that the later and better ones are destroyed. The remedy is to destroy all queen-cells sealed over, which are found four or five days after the brood was given. Such will give queens that are much more satisfactory than those raised by the usual mode of procedure—enough more than to pay for the extra time used in this work.

But this is not to the "reconciling" of Dr. Miller's time with that given by Quinby and others. I think that Editor Root's footnote on page 705, Sept. 15, goes a long way toward reconciling matters. It will be noticed that Mr. Miller began his experiment on July 6, 11:10 A. M., probably when the weather was very warm, as Editor Root infers. But this is not all. It was also at a time of the greatest activity of the bees, and this activity had more to do with the shortening of the usual time than did the hot weather. Whether Editor Root included the activity of the colony in his "particular environment" or not I cannot say; but right here is a point not generally taken into consideration by the most of us when rearing queens. In central New York the best of queens cannot be reared without great vigilance on the part of the apiarist, except from May 20 to August 25 in the ordinary season. Especially does this apply for the six weeks following the latter date. As the harvest from buckwheat begins to wane, a natural "drowsiness" seems to come over the bees preparatory to the winter "nap," and queens reared under ordinary circumstances by queenless colonies consume 16, 17, 18, and sometimes as many as 21 to 22 days for their period of incubation; and I have known 20 days to be used in April and the first half of May. However, bees are much more active inside the cluster during spring than they are during the fall months. And the size of the colony does not play so important a part as many suppose during the time between June 15 and August 1. A two-frame nucleus will raise far better queens at that time than will a full colony in September where such colony is not looked after by the apiarist further than taking away the queen. I have had queens incubated in full colonies during the last half of September, where, through sickness or some oversight, said colonies were not "spurred on" by proper stimulating, that were very little larger than an ordinary worker's, though perfect in shape and form, and that did not emerge earlier than the 21st day after the eggs were laid from which they were produced.

To raise good queens in September, shake queenless bees into a box in the morning and feed them in confinement till four P. M.; then run them into a hive on their old stand, prepared as follows: A feeder next the side of the hive, then a frame of nearly empty comb, then a frame of comb partly filled with honey, and a hundred or so cells of sealed brood (preferably part drone); then the frame of prepared cell-cups; another frame of honey, and another nearly empty comb, with a dummy drawn up beside the latter. In such colonies, with a good feed given near sunset each night for the next ten days, as good queens can be reared as at any time of the year.

GENERAL CORRESPONDENCE

TREASURY NOTES—ALL LEGAL TENDER

BY ARTHUR C. MILLER

Much poor beekeeping is due to fear of stings. Many stings come from poor beekeeping.

* * *

Swamp beekeeping is very alluring, may be very profitable, and is sometimes quite disastrous. There are swamps and swamps. Investigate carefully before you locate. Better winter your bees on the high lands, any way.

* * *

Did the bees persist in robbing out the nucleus despite your putting the combs at one side of the hive and the entrance at the other, "so as to bother the robbers"? It was the best sort of *help* to them. Put the combs and bees close to the entrance and then they will fight to protect it.

* * *

I wish the supply houses would never again put out a hive-floor with less than an inch space on it. Why? Try inspecting for a time, and you will cease to ask foolish questions. Personally I like to get frames out with the bottom-bars on them. They are not a beneficial addition to the floor.

* * *

How very few beekeepers ever study bee behavior experimentally! Most of them are too busy with something or other, or are too much absorbed with planning manipulations. But such study will pay. It will give you more time for something or other, and will do away with many manipulations.

* * *

Did you ever notice how many of your combs have a patch of drone-cells in one lower corner? Have you also noticed that it is the corner nearest the entrance? I am talking of combs built on full sheets of foundation. How does it happen, do you ask? When the bees are more or less idle at the end of the season they often cut away comb near the entrance, using the wax elsewhere in the hive. The next year drone comb is filled in those spaces.

* * *

Do you want a nice weedless, mudless, dustless strip before, behind, beside, and beneath your hives? Smooth the ground and lay down a strip of one of the better grades of asphalt roofing paper, using the heavy weight, and put your hive stands on it. A good paper will wear for a long time. The cheaper sorts are made with tar and oil, and soon crumble. A fine asphalt walk about your hives sounds expensive, but it isn't—and the luxury of it!

* * *

I am glad to see that the tide is turning, and that others are advocating doing the "stimulative feeding" in the fall. A full larder and a young queen in the fall, spells good wintering, good springing, and good cropping. Incidentally it is a good lazy man's way—lots less work than spring fussing.

* * *

Won't the new system work as stated? How many of your own notions did you put in when trying it? Probably several. And then you blame the originator. Try it again and follow his directions exactly, and be sure you understand them. There is a bare possibility he knows more about it than you do.

* * *

Mr. Crane objects to the advice to have foundation drawn during a flow of honey-dew because he does not have enough dew more than once in twenty-five years. Lucky dog! Well, a brood-comb should last twenty-five years, so my advice will still hold good—if he doesn't want new ones before his next dew flow.

* * *

Allen Latham says, "Good clean spit is the best thing out for diluting royal jelly. I find cells better accepted, and queens larger, where I thus dilute the food than otherwise. I am careful that my mouth is clean before I use saliva." If memory serves me rightly, some one else has written to the same effect. Now that A. L. has confirmed it we may all safely follow the practice.

* * *

If you do not want the bees to stick it fast, rub mutton tallow on it. That is what James Heddon said years ago, and it is as true to-day as then. But there are some parts of a hive that are better stuck. You will discover them after you have tried the tallow awhile. But be sure to try it, for it facilitates a lot of work. Rub it on cold or put it on hot with a brush, as suits the time, the place, and the man.

Did you ever notice the nice things suggested for "floats" when feeding from pans, etc.? Cork chips when you cannot find enough cork on the place to stopper the molasses-jug; planer-chips when there isn't a planing-mill within ten miles of you; excelsior when you haven't seen any in years; grass where there is no grass, and all the time the beeyard is cluttered up with the best sort of non-soakable float material, to wit, bits of comb and pieces of foundation. Why didn't you think of it?

* * *

Will some inspector devise a way to get "the average beekeeper" to do better beekeeping? It does not seem as if human ingenuity could devise more wrong ways of doing things than the inspector finds. But the things left undone are legion also; and the way nicely made factory goods are misused is astounding. First they are improperly made up and then they are wrongly used. A "bee-space" is an unknown factor to the "averager." There may be an exception, but I have not found him.

* * *

Dr. Miller and Mr. Dadant agree that some queens prove good the third year, so they prefer to give all good two-year-olds a chance for another year. But did they ever consider that such practice is at the bottom of the irregularity of colonies the following spring? By putting in each fall young queens carefully raised from good stock we are reasonably sure of having very nearly all of the colonies of the same strength the next spring. The value of such conditions they will acknowledge. The use of thoroughbred stock is implied in this practice. It will not do to use queens of various strains and matings if you expect uniformity. Selecting breeding queens is almost as difficult as picking one's ancestors. You must begin several generations back. Incidentally there are several factors involved besides color.

* * *

I wonder if it would not be a great blessing if every sheet-zinc honey-board, bound or unbound, should vanish from the face of the earth, leaving only the slatted kind to be used. When inspecting recently I removed two supers solid with honey, and then found a sheet of zinc glued solidly to the brood-frames. There were just *five* holes open for the bees to pass through. Methinks I recall a lot of talk on giving bees *easy* access to the supers. Just what constitutes "easy access" from the bees' view-point? However, the bees glue up the slatted kind in a similar way when left on year in and year out, as so many are. But it is possible to get off the slatted one and still have it usable. Not so with the sheet zinc. Well, the less said the better. Memories of attempts to return it to the hive at the owner's request are still too painful.

Providence, R. I.

A BEE-INSPECTOR'S OPPORTUNITY

BY A. E. CRANDALL

A short time ago I took a trip through a part of our county with our State bee-inspector, and it certainly was a trip I enjoyed. It was a warm sunshiny afternoon, and apple-blossoms were opening up in good shape; so you can imagine the bees were quite busy, and it seemed good to hear that contented hum as they got their fill from those blossoms. There are thousands of fruit-trees being planted in this locality, and there are plenty of good-sized orchards already in bearing.

We came across one beekeeper who had just set 1000 fruit-trees; and while the general appearance of his place was good, most of his bees were in a variety of hives and in bad condition, and still he told us he had made money with them.

I have about made up my mind that bee-inspectors must find as good a variety of people as hives. To me it was amusing to see the looks they would give the inspector when he introduced himself; and, no wonder. What would you think if a man clad in overalls, and with sleeves rolled up, appeared at your door with a hive-tool in one hand and a smoker (a thing which you never saw before) in the other. One woman who was out in the yard when we arrived "beat it" (as the boys say); and when friend Yates went to get her name she had disappeared; but the dog was inside of the screen-door, begging to be let out; and as we had other places to go to we did not stop to mince matters.

Another place we went to had "some bee-house" on it, and the inside was as dark as a pocket, and even on that spring day was as hot as a fireless cooker. The two ladies who were at home came down to see the "fun," as they expressed it—of course meaning to see some one get stung, and

A crowd of new enthusiasts.

wanted to know what "that thing" (the smoker) was. When they saw it in working order, and realized how easy it was to handle bees by using one, they saw the fun was not all on one side. Mr. Yates left bulletins on foul brood with a good many people. I think the inspectors have the opportunity of doing a lot of good for those who appreciate their work. Their work is not all "honey" by any means.

There is a need of education along beekeeping lines; and to those who fear overproduction of honey from this cause I would say, look at the work of our fruit-growers' associations scattered all over our country. They are creating a demand for their product. They show fruit, talk fruit, and even give it away at our conventions in winter; and by giving people an apple they are creating the demand. I don't mean by this that beekeepers should give away a whole crop of honey, but a sample now and then, put in the right place. I think it would work wonders.

Another thing, we hear of over-production of apples in some localities, when only a few miles away the demand is keen; but the means of transportation are the stumblingblock. The question of distribution is what is bothering some of our beekeepers, and I think some fruit-growers also. Any way, let us all push a little.

I am sending a picture of some of my friends who came to see us from a near-by city. It was with some misgivings that they consented to handle a frame of bees; but I assured them that the bees would behave, so you see the result. The hive in the picture is one similar to Mr. Fuller's, of Blackstone, Mass., but this one holds 14 frames. A gentleman 73 years old came to see the bees one day last week, and I guess he was pretty well pleased with what he saw, judging from his expressions. When I showed him the queen-cells the bees were building he said he never before saw any thing in all his life to equal it. Well, who did? The work bees will do is wonderful; and when spring opens up with all the beauties of nature, and the bees start to work, one can't help feeling that it is good to be alive on this old earth, and be a beekeeper.

Berlin, Ct.

SMOKING IN QUEENS AND BEES

BY W. B. COZINS

Concerning the smoke plan of introducing, I wish to say that I have introduced queens into full hives, half-hives, and two and three frame nuclei, with perfect success except once, and I don't consider that the fault of the plan.

I seldom stop the entrance, and never unless there are signs of robbing or something else that is unusual, and I introduce at any time of the day that suits my convenience, although I believe toward evening is best.

The instance I wish to speak of happened rather late, after the swarming season was over. I had gone fishing; and when I came home about dusk my wife told me that there was a little swarm hanging in an apple-tree. The next morning I shook them into a basket and found them to be beautiful yellow Italians. I had a hive of dark hybrids that had no queen, but plenty of honey; so I thought I would unite them. I picked up the queen and smoked her in, and dumped the bees on the alighting-board and smoked them in. They began fighting immediately, so I smoked them as much as I dared to, and closed the entrance nearly tight, and left them, thinking it a failure. They fought all day, and were still at it the next morning; but by that time there were only about a dozen yellow bees left. I felt pretty blue over it, for I hated to lose that beautiful queen. Two or three days later I opened the hive to find out what was best to do with them, and there was that yellow queen with a nice patch of brood, but not one yellow worker could I find!

In smoking in queens I watch a few minutes until the guards begin to come out; then I consider the job finished unless there is danger from robbers, in which case it is necessary to watch until every thing is all right or else stop the entrance with green grass.

Hadley, Pa.

CONCRETE HIVE-STANDS

BY C. V. RICE

I am so much pleased with my cement hive-stands that I want to tell the readers of GLEANINGS about them. These cement stands are of just the right shape, size, and weight to be most convenient to adjust, wherever the hive is placed. They are especially handy when it comes to lifting a heavy super, as they take up so little room, and allow standing close to the hive.

I make my stands 15¾ inches long (for ten-frame hives), with a six-inch base, two-inch crown, with concave sides, and in two sizes, 5 and 6 inches high. By making the sides concave I save cement. They are neater in appearance, are easier to handle, and will keep a drier resting-place for the hive. The cement has a tendency to draw moisture from the ground; but the shape of these stands gives them such a drying surface in proportion to their volume that practically all moisture is dispersed before reaching the crown.

When placed on level ground a six-inch stand at the back and a five-inch one to the front will insure the hive of proper drainage in wet weather.

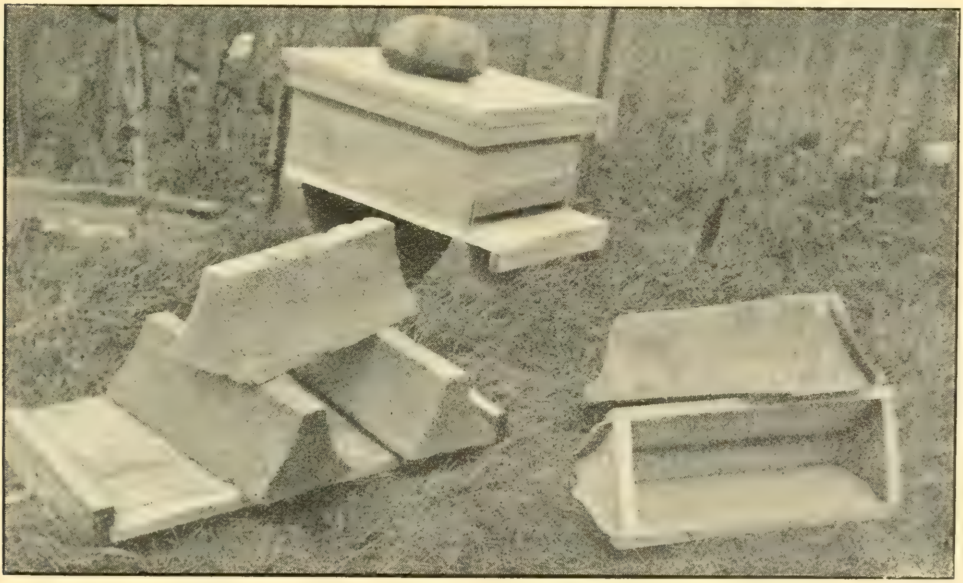

FIG. 1.—C. V. Rice's concrete hive-stands, and form for making them.

One barrel of cement mixed in proportion of 1 part of cement to 8 of coarse sharp plastering sand will make from 175 to 200 stands. They are easily made, but should be kept well wet down for two or three days while setting, as it will make them much firmer.

I was much troubled with ants working into my hives, as they infested the old decaying wood stands which have to be replaced every few years any way. This led me to experiment with cement.

Lawrence, Mich.

[Mr. D. Abbott, of Bradentown, Florida, has been using a similar hive-stand for some time, with this difference. He places a block in the form that makes a notch in the stand, thus saving material and making a much lighter block, and one more easily handled. Fig. 2 makes the idea plain. He places two wires in the concrete as he tamps it into the form, thus making the block almost unbreakable. The mixture is just dry enough so that the block can be removed from the form immediately.

Mr. Abbott has also a ventilated cover, shown in Fig. 3, made of a framework roofed with corrugated iron. A separate super cover is not needed, for the cover boards lie flat on the hive, and are cleated above and below, the under cleats telescoping down on the side of the hive to keep the cover from blowing off. According to Mr. Abbott this cover is light, cool, water-tight, and everlasting.—Ed.]

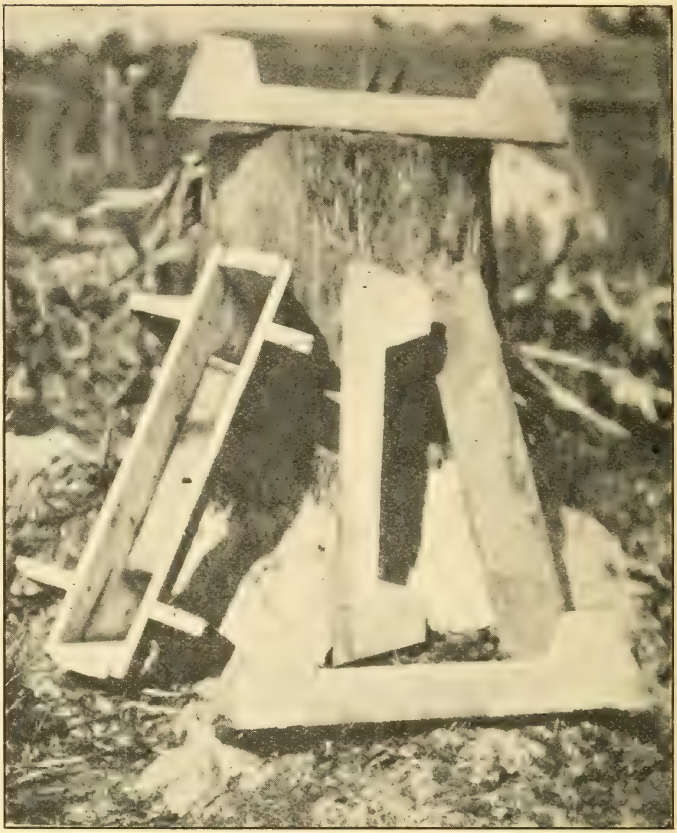
Fig. 2.—D. Abbott's hive-stand which requires rather less material than the one shown in Fig. 1.

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BEE AND HONEY EXHIBIT AT HARTFORD, CONNECTICUT, FAIR

BY E. G. CARR

The 1914 announcement of the Hartford, Ct., fair states that the management is determined to make this the best fair yet held; and the exhibit of apiarian products and supplies plainly showed that the Connecticut beekeepers had caught the same spirit and carried the idea to a successful finish.

While the poor crop, both in quality and quantity, had a depressing effect on the exhibit as a whole, the "Nutmeg" beekeepers were undaunted, and the 20 x 30 ft. building set apart for bees and honey by the Fair Association was well filled with exhibits, as, indeed, it should be, as $500 in premiums was offered.

The competition in light extracted and chunk honey classes was so close that it was with the utmost difficulty that the judge was able to name the winners.

Thirty-six one-frame nuclei were shown.

In this exhibit were different races of queens with their own progeny, and also a class for best display of different races. In this latter class were blacks, Caucasians, Carniolans, Banats, Italians, Goldens, Cyprians, and Holy Lands. This exhibit showed the need of a standard of perfection in judging queens and bees of the different races. To illustrate: What are the prominent differences between the Banats, Carniolans, and Caucasians?

In the exhibit of blacks the judge ruled out one nucleus, the bees of which showed distinct gray bands of hairs on the abdominal segments instead of yellow or light brown. In discussing this later with the exhibitor he said the history of those bees, so far as known, precluded the possibility of any admixture of far-eastern blood, but acknowledged that the color was distinctly gray.

The catalog ruled that the first consideration in judging extracted honey is body and color. This brings up the question whether, other points being equal, the lightest-colored honey shall be given first in the light class, and the darkest in the dark class.

When the judge came to the canned fruit. pickles, and cake in which honey instead of sugar was used wholly or in part, he soon found that it was an almost impossible task for a "mere man" to decide which was better; and to show that Supt. Yates realized what the result might be otherwise, he saw that the judge had luncheon *before* judging the culinary department.

Fig. 3.—The hive-stand in use, also showing the corrugated iron cover.

The array of good things to eat in this department gave one the impression that it is a good thing to be the husband of a beekeeper's wife in Connecticut.

To be sure, one can get booklets of recipes for honey cookery; but the long list is somewhat confusing, and it is suggested that the recipes for the prize-winning cakes be printed on slips of paper and placed near the cakes so those interested might be induced to try the honey cookery and thus increase the use of honey.

Allen Latham, the original honey-sandwich man, was again doing a good business, as was also W. K. Rockwell.

A NEW HONEY DRINK.

A new honey concoction was tried out, and proved a great success. This is honey soda or "honey fizz," as the "barkers" called it, and is soda sweetened with about two tablespoonfuls of honey and a little less of evaporated cream.

On Monday (Labor Day) Mr. Yates, who had the honey-fizz concession, ran off 2800 glasses of this drink, using eleven ten-gallon tanks of soda, seven gallons of honey, and four gallons of cream. Besides being of pecuniary profit to the concessioner, such departures are of value to the whole beekeeping fraternity in advertising honey, and it is not unlikely that in time every soda-bar in the land will serve honey-fizz and thus increase the consumption of our product.

A. W. Yates, Hartford, and Allen Latham, Norwich, tied for sweepstakes on first prizes, each having five, Mr. Yates winning on second with three—amount $25.

THE WINNINGS.

A. W. Yates, Hartford, 1st on Carniolans; 1st on display of races; 1st on display of queens; 1st on queen-rearing outfit; 3d on Italians; 2d on Goldens; 3d on chunk honey; 2d on light extracted; 3d on dark extracted; 1st on display of honey; 2d on display of bee-fixtures, and sweepstakes. Total winnings, $150.

W. K. Rockwell, Bloomfield, 1st on Goldens; 3d on Carniolans; 3d on blacks; 2d on display of races; 2d on display of queens; 3d on queen-rearing outfit; 1st on chunk honey; 1st on light extracted; 3d on granulated; 2d on display honey; 2d on wax. Total amount, $96.

J. G. Griswold, Hartford, 2d on Carniolans; 2d on blacks; 2d on chunk honey; 3d on Goldens; 3d on display of races; 3d on display of queens; 3d on display of bee-fixtures.

Allen Latham, Norwich, 1st on blacks; best 10 sections; best case sections; dark extracted and wax. Amount, $46.

H. W. Coley, Westport, 2d on cs. sections; 2d on 10 sections; 1st on granulated; 2d on dark extracted; 3d on light extracted; 3d on display of honey. Total, $39.

W. G. Ehouse, Bridgeport, 2d on granulated; 3d on 10 sections; 3d on cs. sections.

A. E. Crandol, Berlin, 2d on Italians; 2d on queen-rearing outfit.

L. W. Adams, Hartford, 1st on Italians.

C. H. Clark, Cobalt, 1st on bee fixtures; 3d on wax.

CULINARY.

W. E. Rockwell, Bloomfield, 1st on cookies and gingersnaps; 1st on pickles; 1st on canned fruit; 3d on muffins; 3d on cake.

Mrs. L. W. Adams, Hartford, 1st on muffins; 2d on cake; 3d on cookies and gingersnaps.

Mrs. A. W. Yates, Hartford, 1st on cake; 3d on canned fruit; 3d on pickles.

Mrs. L. E. Rockwell, Bloomfield, 2d on cookies and gingersnaps; 2d on pickles; 2d on canned fruit.

Mrs. Dickinson, Hartford, 2d on muffins.

NOVICE DEPARTMENT.

This department is open only to those who have not before exhibited, and is an excellent arrangement to encourage new exhibitors.

W. Beeman, Bloomfield, 1st on sections; 2d on light extracted; 2d on dark extracted; 1st on chunk honey; 2d on wax.

J. E. Wallbehoff, Weathersfield, 1st on dark extracted; 2d on chunk honey; 1st on wax; 3d on light extracted.

L. W. Adams, Hartford, 1st on light extracted; 3d on dark extracted; 3d on chunk honey.

A. Hoffman, Hadlyne, 2d on sections.

St. Clair Burr, Manchester, 3d on sections.

C. H. Clark, Cobalt, 3d on wax.

Special premiums for meritorious articles:

G. S. Whitten, Hartford, $2.00.

R. H. Noble, East Hartford, $5.00.

The writer carried away very pleasant recollections of this short visit with the Connecticut beekeepers at their exhibit, not to mention a full dose of enthusiasm, and feels like urging every State association to "go and do likewise."

New Egypt, N. J., Sept. 16.

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HONEY AND WAX EXHIBIT AT THE OKLAHOMA STATE FAIR

BY F. A. GAREE

The engraving shows our honey and bee exhibit at our State fair this year. In the foreground at the right is a large sunflower made of beeswax. Next is a picture of A. I. Root, framed in beeswax, and at the left is the Lord's prayer, written on a beeswax platter, with beeswax strung out in threads and laid on so as to form the letters.

The centerpiece in the display is a large frame of solid beeswax with frame of honey in the center, and above it slabs of beeswax and two shields. The eagle on the left was made with petals of pressed flowers.

Noble, Okla.

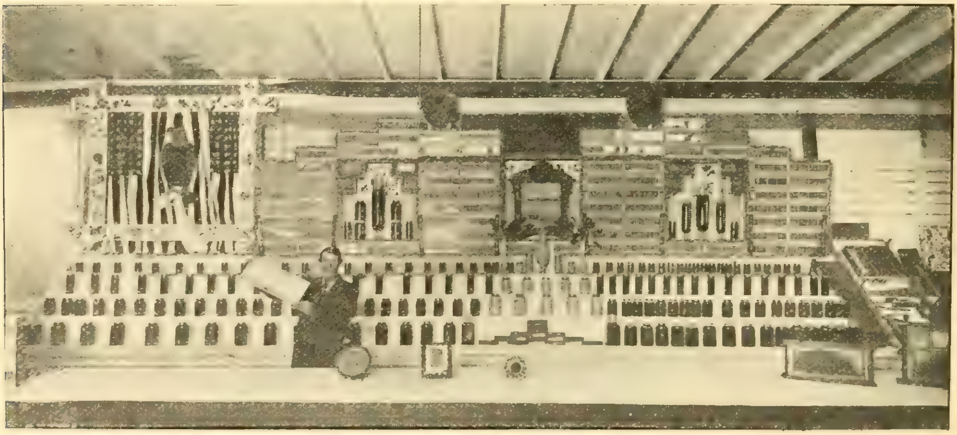

Exhibit at the Oklahoma State Fair in 1913.

Three-year-old apiary of Frank M. Foster, Mt. Blanchard, Ohio.

A GOOD START IN ONLY THREE YEARS

BY FRANK M. FOSTER

I am sending a photo which shows a portion of our yard, which we started three years ago. This venture has proven to be one that has given pleasure and that has yielded a handsome financial profit each year.

As you can see, I caught my younger brother in the act of looking into one of the hives. He is very enthusiastic over the bees, the same as myself, and expects to help me when I get my outyards established.

Mt. Blanchard, Ohio.

WINTERING IN LOW SHEDS; FEEDING LOAF SUGAR

BY L. C. LE MAY

My experience in wintering bees has been very successful. I built a bee house or shed facing the south that will hold six hives, with the front end of the hives exposed to the weather. The hives are spaced about 8 or 10 inches apart, so as to allow packing around the sides and back with leaves or other material.

The roof or cover is sloped a little to the back and hinged on the front, so it can be raised at any time to examine the hives, and is high enough above the hives to admit a full-depth extracting-super or two section-honey supers. I make a light frame out of ½ x ¾-inch pine with a brace across the middle to strengthen it. This I cover with ordinary wire netting and fit it into a 4¼-inch plain section-honey super so it will rest on the tin strips that go across the ends. If the screen is tacked on the upper side of the frame it leaves about ¾ or ⅞ inch of space above the brood-frames when placed directly on the hive-body. This makes a fine clustering-place for the bees in winter. By raising the cushion or packing, whichever the case may be, I can see the bees, the amount of stores, and the condition they are in, without disturbing them.

I have looked at my bees every month in the year (always on a pleasant day) without disturbing them in the least. If it looks as if they were running short of stores I put a few pounds of cube sugar right on top of the netting and under the cushion or packing. I have had very good success with cube sugar for winter feeding; and although some may crumble and sift down through, it doesn't amount to much. It is not very expensive, and saves the bother of making or experimenting with other kinds of winter feed.

The packing material above the brood-nest absorbs the moisture that generates in the hive, and keeps the brood-chamber dry and sweet all through the winter.

I have never lost a colony wintered in this way, and the bees always come out strong in the spring.

I consider it a great advantage to be able to see the bees, and feed them if necessary, during the winter without disturbing them.

If the spring is very late, or the weather is bad, I can leave them packed in the shed just as long as I wish. This is a great help in rearing early brood, and also securing early honey by putting on a super as fast as the bees need it.

If the hives were exposed to the open on cold spring nights the bees would not carry the honey above nearly as fast as when the hives and supers are protected and warm.

West Hartford, Ct.

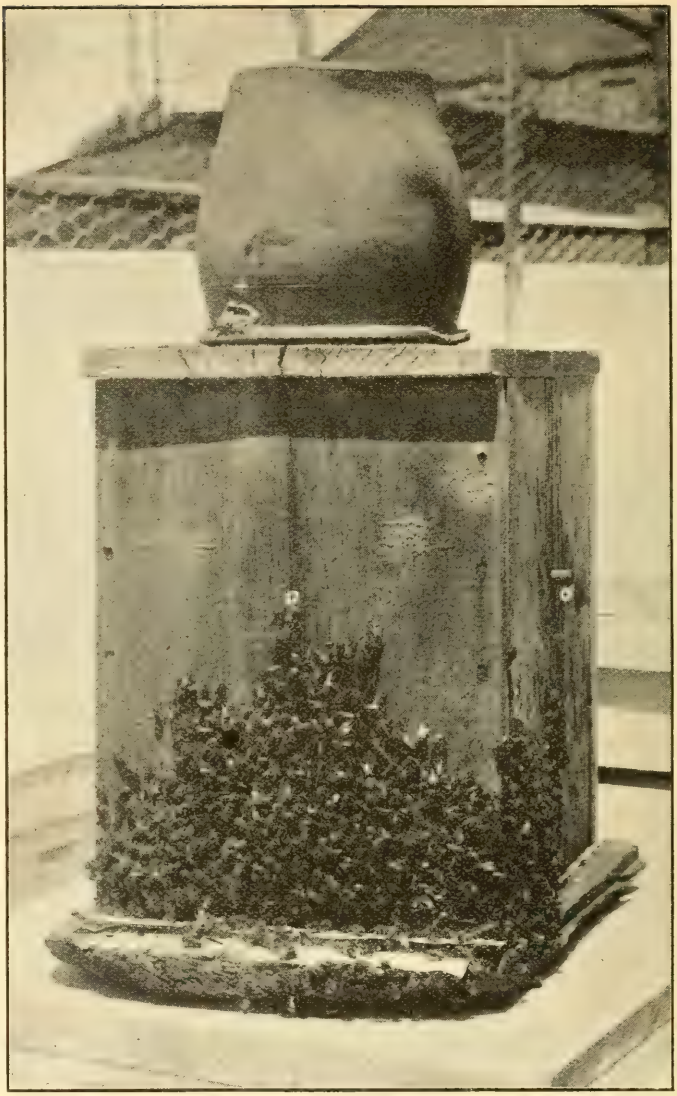

FIG. 1.—Old box hive with a super made out of an old crock.

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SOME INTERESTING PICTURES

BY CHARLES Y. HAKE

I am sending several photographs of combs and old hives that I have photographed.

Fig. 1 is an old box hive with stone crock for super. The mark X on the crock is where a wasp has built a clay cell. The two marks O on hive-body are where two sticks are run through the hive, crossing each other to hold up the comb.

Fig. 2 is another old hive split in two, showing the two sticks crossing each other to hold up the combs.

Fig. 3 is a view of surplus stored in a common box, used as a super on an old box hive.

In Fig. 4 the comb with the large drone-cells partly capped with honey is a wired frame that by mistake I put in a hive without any foundation whatever. The other one is a frame that contained a full sheet of foundation drawn out into worker comb. The frame without any foundation was at the side of the hive, the last frame. Had I made the mistake, and placed it in the center, it would have been filled with drones, I suppose.

About porticos, I will never be without them. I am using one in front and at back for protection from heat and especially rain. In hot weather I take the movable end piece out for ventilation. Before using porticos in front or back, I have lost at the least a quart of bees from several colonies when a rain came up, especially at night when they cluster out like a swarm.

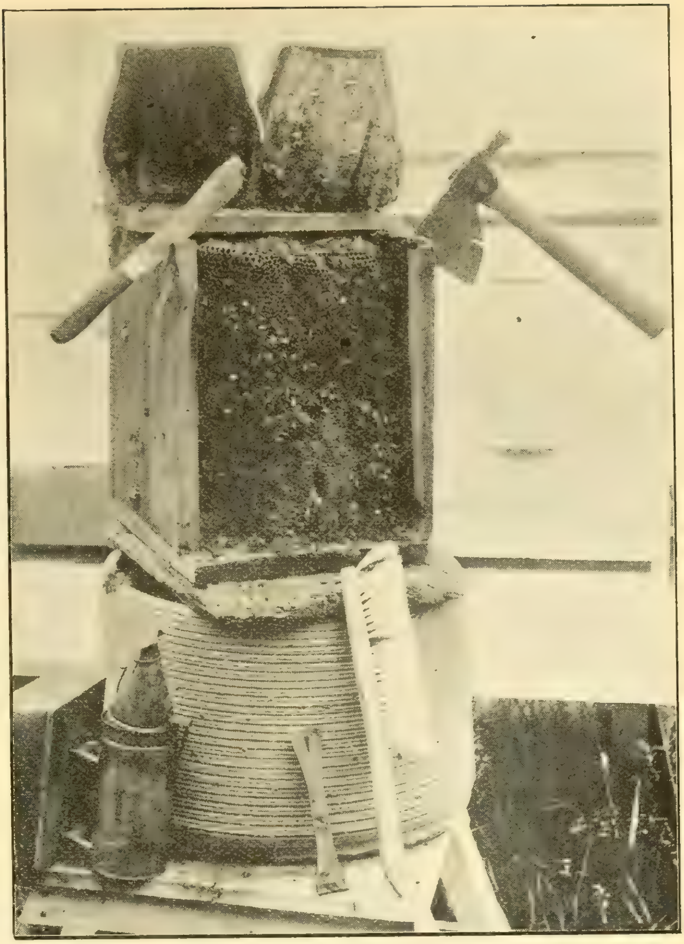

FIG. 2.—Another box hive split open, showing combs in the brood-compartment as well as those in the super.

York, Pa.

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THE TEN-FRAME HIVE TOO SMALL FOR EXTRACTED-HONEY PRODUCTION

BY D. L. WOODWARD

Mr. George M. Huntington's article, page 215, March 15, "Extracting from the Brood-combs before the Honey-flow to Give the Queen Room," is an incentive to me to write a few words along that line. Right here I want to say that I heartily agree with the editor's note, that "locality is practically the whole thing." In some localities it may be necessary and practicable to extract before the flow in order to give the queen enough room, and in other localities (my own for instance) it is far from necessary. My main trouble is to get my bees to store enough honey in the brood-chamber to carry them through to the next honey-flow.

For some time I have been of the opinion that the ten-frame hive is not large enough where running for extracted honey. If I were to start all over again I certainly would adopt the twelve-frame hive. For me to change now would mean too great an expense in money and labor, as I have some 300 colonies in ten-frame hives, and over 700 supers with drawn and wired combs.

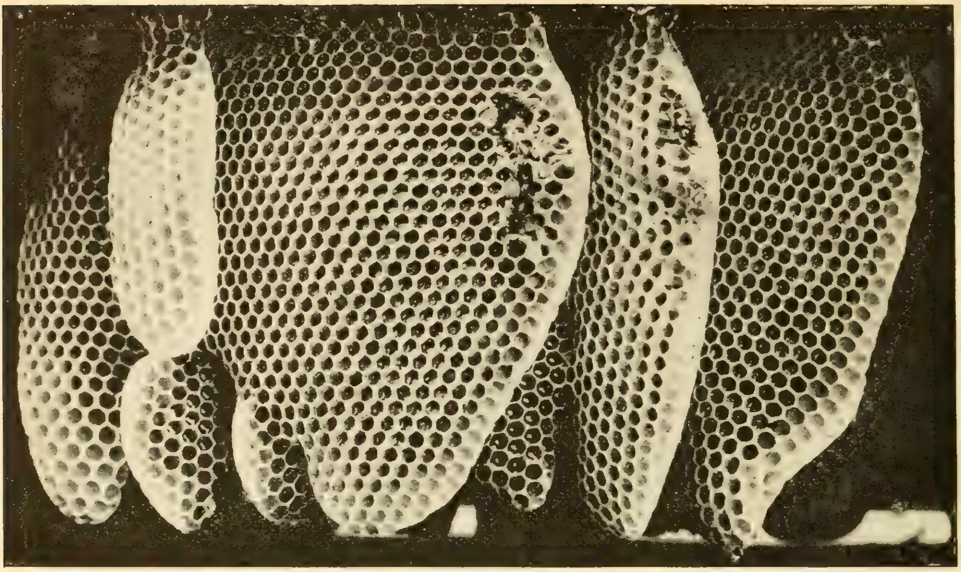


FIG. 3.—Interior of box used as a super, showing naturally built combs. Note that some of the combs are built with two parallel sides of the cells vertical, and some with two sides horizontal.

With us we have the summer flow of white honey and the fall flow of buckwheat, the latter being the heaviest flow as a rule. I find that, with the ten-frame hive during the buckwheat flow in August, in most cases where there is a good prolific queen there will be from eight to ten frames filled with brood, leaving very little room for honey; consequently the honey all goes up into the supers; and if it happens, as it has for several years past, that the flow shuts off suddenly, due to one cause or another (generally a drouth at that time of the season), the bees will be short of stores; for with us buckwheat is the last of the honey-flow except for a limited amount of wild aster and a little second-growth sweet clover. By using a twelve-frame hive the queen would require no more room for brood than in the ten-frame hive, and there would be two extra combs for winter stores. In the spring the brood-chamber should be contracted down to six or eight frames by using a heavy division-board and putting the empty combs to the outside. In my opinion it will not be many years before the twelve-frame hive will have taken the place of the ten-frame as a standard hive.

When our bees went into the cellar, December 20, they had several combs of brood, and in some cases the queens were still laying; but a number were so short of stores that it was necessary to feed them.

My best colonies are the ones that have plenty of honey in their hives in the spring. I do not practice stimulative feeding in the spring. I believe it is better to let nature take its course; and if there is plenty of honey in the hives when the bees come out of winter quarters I'll risk but that you will have rousing colonies by the time the flow has come, providing you have a good young queen in the hive. Understand that I am speaking for this locality in New York.

As I have some foul brood in my apiaries I do not feed much honey, but use sugar syrup, as there is too much risk in feeding honey from a yard where there is disease, unless first boiled. Two years ago I had considerable disease among my bees; but to-day I have only a few colonies affected. In 1912 I treated over fifty colonies during the season; but later on a few more affected colonies appeared, and were treated in the spring of 1913. No more disease appeared until August, and I thought I was rid of foul brood; but in August, toward the close of the buckwheat flow, I discovered several colonies that were slightly affected; and as it was too late to treat them I removed them from the yard, and left them to be treated this spring. I am in hopes to stamp it out entirely this season.

I have a simple system of keeping track of my diseased colonies. Some who have disease in their yards may think it worth trying. I take some small-size roofing-caps and dip them in blue paint (any color will do); and when I discover a colony that is affected, I tack two of these blue caps on

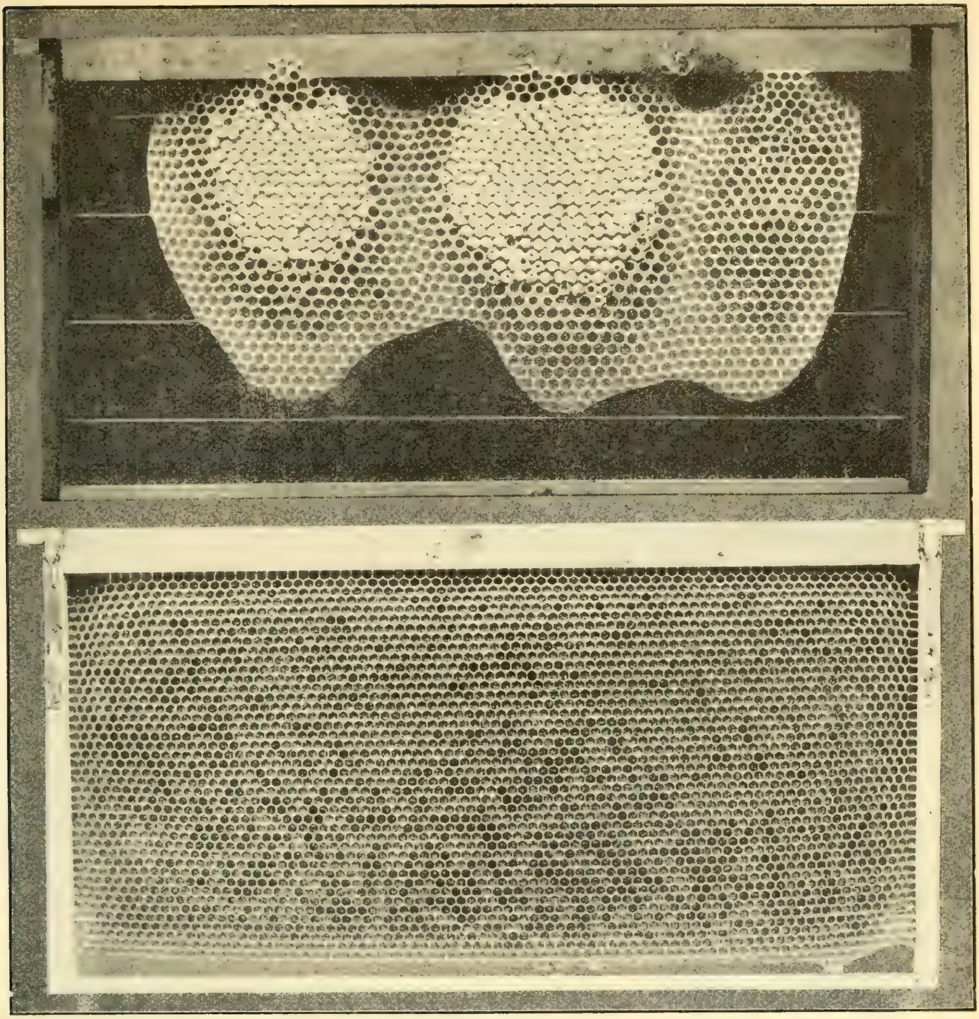


FIG. 4.—The upper frame, by mistake, contained no foundation, although it was wired. Note the drone-cells. The lower frame contained a full sheet of foundation.

the rear right-hand corner of the hive. If they are only slightly affected they will oftentimes clean up of their own accord during a good honey-flow. If so, I remove one cap, the remaining tag showing that the colony has been diseased but has cleaned up. Such colonies are watched closely; and if disease appears later, as it often will, the second tag is again placed on the hive. After a colony is once diseased one tag always remains on the hive until the colony is treated. In most cases where there is once disease, and they clean up, it will appear again some time. I have had slightly diseased colonies that cleaned up and showed no signs of disease the following year; but the second year it appeared again much worse than the previous time. Of course the blue tags do not tell what year the colony was diseased. That part is taken care of on a record-tag which is nailed on the same corner of the hive, and which will be described in a later article.

As this has happened time and time again, I have given up letting the bees clean up themselves; and if they are only slightly affected, I remove the affected combs, replacing with foundation. I do this only when there are but a few diseased cells on one or two combs. If more combs are diseased, I treat then at once, and put the diseased combs away in a bee-tight room to be melted up later.

I formerly burned out the hive-body,

The Blakeslee Farm near Medina showing the border of basswoods at the left and the old windmill in the distance which was used as power for running the printing-press when GLEANINGS was first started. A closer view of the old mill is shown on the cover of this issue. See editorial.

bottom-board, and cover with a gasoline-torch, where there had been disease in them; but I have come to the conclusion that it is not necessary to do so, and have abandoned that part of the process. I know that some of the old-line beekeepers will scowl and shake their heads at this; but I am confident that my bees do not get the disease from the hive.

Clarksville, N. Y.

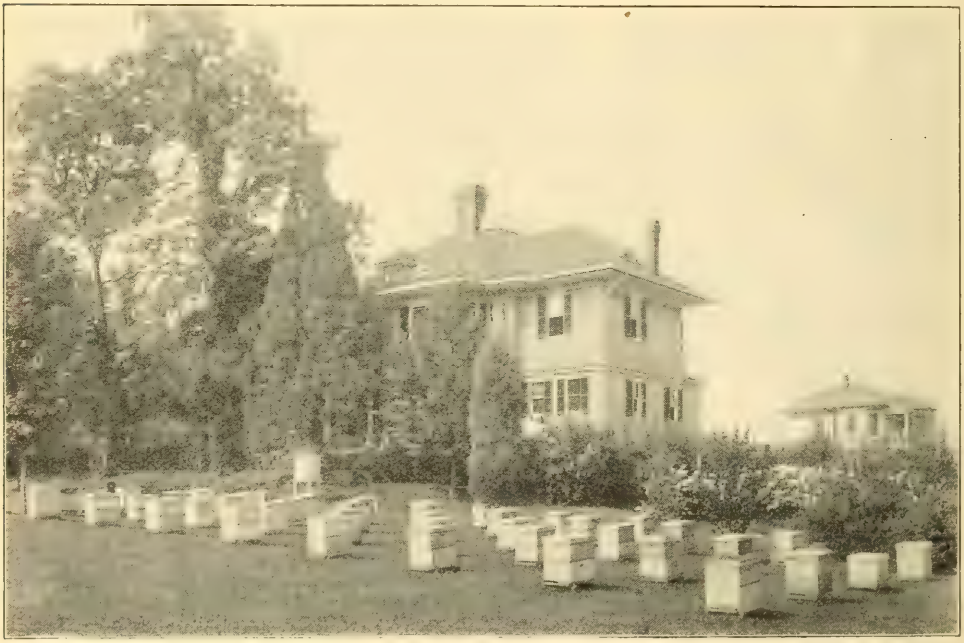
NEW APIARIAN LABORATORY AND EXPERIMENTAL APIARY

BY DR. E. F. PHILLIPS

I take pleasure in sending GLEANINGS a photograph of the new laboratory for the bee-culture investigations of this Bureau. This building has been occupied by this office since July 1.

The laboratory is located in a suburb of Washington named Drummond, across the District line in Maryland. It is located about seven miles from the center of the city, and the trip can be made easily by electric car (Wisconsin Avenue line, running on F Street). Cars leave Fifth and F Streets every fifteen minutes during the day. At the end of the car line there is a short walk, the laboratory being next to the last house on the right-hand side of the only street in Drummond. All mail, telegrams, express, and freight should be sent to the Department of Agriculture, Washington, D. C., as formerly.

The new laboratory is a building constructed for private residence, but admirably suited to our needs. We have eleven rooms, basement under the entire house, and an attic, hot-water heat, gas, electric lights, water, sewer, and all modern equipment. The house is located on a lot of about three-quarters of an acre, giving us abundant room for the apiary and other outside work. The lot was beautifully planted by former occupants so that we have a rather finished establishment and are not compelled to wait until trees and shrubbery can grow before the place is attractive. The photograph shows this, and indicates that our surroundings are ideal.



Experimental Apiary and Apiarian Laboratory of the U. S. Government at Drummond, Md.

The establishment of this laboratory in the suburbs marks a large step in advance for the investigations in bee culture of this Bureau. We formerly had offices and laboratories in the city with the apiary eight miles away. Then the wintering work was carried on at the University of Pennsylvania, Philadelphia, because of a lack of facilities in Washington. Furthermore, the laboratories in Washington were not all in the same building, but were separated about a mile. All of this caused a considerable loss of time and useless expenditure of money; and the placing of all of this work in one place has increased the efficiency of the work incalculably. The wintering work will be carried on in the basement, and also on colonies out of doors. The instruments adapted to and devised for this work have been removed from Philadelphia, and are now in place in the new laboratory.

Having at last obtained creditable quarters suited to our needs it will be an exceptional pleasure to have our beekeeping friends come to see us. I have made the directions sufficiently explicit so that we can be reached. We can also be reached by telephone on the Washington exchange (Cleveland 998).

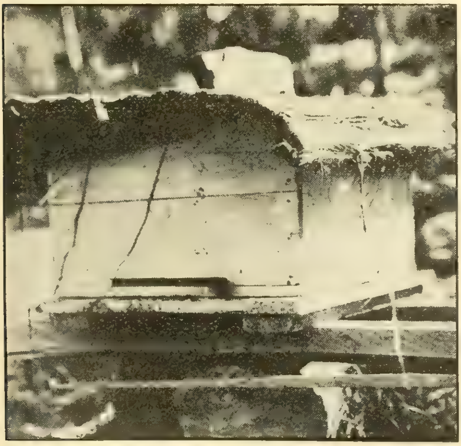
[A front view of the laboratory will appear on our cover for Nov. 15.—Ed.]

BARK SHADE-BOARDS THE BEST IN THE WORLD

BY MAJOR SHALLARD

I am sending two photos—one of our Australian stringy-bark shade-board on the hive, and the other of "yours truly" just lifting one off a hive. You will note that I still use quilts. I think Dr. C. C. Miller does also, so I feel that I am in good company. It is not wise to prophesy before the event; but I think the bee world will go back to quilts.

With regard to this stringy bark, it is stripped off the tree, the sheet worked about over a fire, sap side down, and then put flat on the ground, with weights on until it dries as flat as a board. It makes splendid dwellings of a rough sort for the bush; but its principal merit is that it is a non-conductor of heat; and on the hottest day a bark "humpy," if it has a dirt or concrete floor, is as cool as the proverbial cucumber. For this reason it is invaluable for shade-boards for hives.



Australian stringy-bark shade-board; cheap, and almost perfect non-conductor of heat.

Major Shallard lifting one of the bark shade-boards.

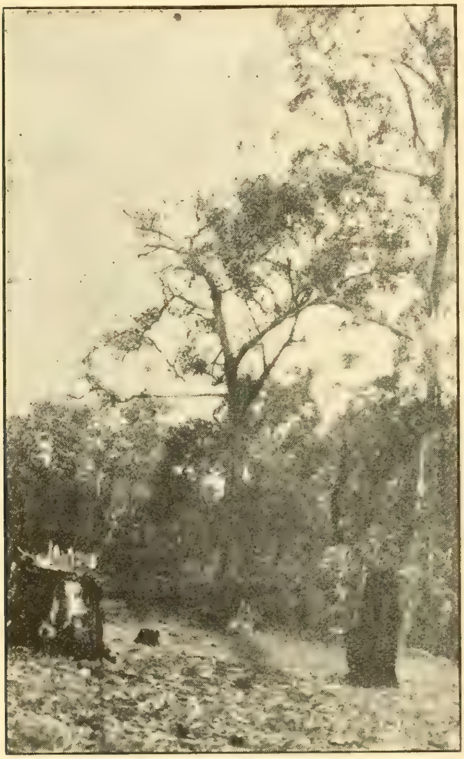
I am enclosing a third photo showing the tree growing. The two stumps in the foreground are stringy bark, and the tree in the center is of the same variety.

South Woodburn, N. S. W., Australia.

SOME HIVES MADE BY L. L. LANGSTROTH STILL IN USE

BY JOSEPH G. BAIER

Just to go the boasters one better yet (best yet, I think), let me say this about hives of ancient times, referring to p. 448, June 15. I have several that I am sure are over 44 years old; but one in particular is made of the lumber that Rev. L. L. Langstroth himself made with his own hands in 1851 at Flushing, N. Y. In that year and place you will remember he had the support of Mr. Parsons in his experiments. He obtained permission to Italianize all colonies near at hand. In the grounds of the old Flushing Institute, owned by Mr. Elias A. Fairchild and Mr. Allen P. Northrop, the hives were all made Langstroth type by Mr. Langstroth personally. These same hives of his old dimensions were in use till 1902—51 years.



The tree from which the bark for shade-boards is obtained.

In 1902 I purchased six or eight of the old colonies. I cut down the old hives to present standard L. dimensions. Be it remembered Mr. Langstroth's first hives were about two inches longer, about ¾ or 1 inch higher, and a trifle wider than the present L. hives. One of the hives had his autograph and the date, 1851, in pencil on it. But at this moment I do not remember whether it was inside or outside, or just where. I painted my hives very well after rebuilding, and have lost track of which one; but I am still using the same hives with a considerable number of newer ones. Those old hives were almost identical in shape with the dovetailed hive of the present, and had a telescope top. I made most of them of the same type, and still like it best.

Now whose hives are oldest? It looks like one Baier (pronounced Byer) against another Byer.

ANCIENT WAX COMBS.

In the A B C book, I believe, and in GLEANINGS at times, I think I have read discussions about how long combs can be used. Well, when I started to run the Flushing Institute apiary as the younger enthusiastic assistant of Mr. A. P. Northrop, I transferred a great many combs by cutting out the best pieces and wrapping string round and round for temporary support in standard frames. Some of those frames, Mr. Northrop told me, were probably as old as the hives, for he did not "tinker much with what was working all right," as he put it. I have some of those same combs in newer frames. I have had them 18 years. I am sure they were more than that old when I got them in 1896; and, though there is no positive evidence of it, I think it a fair presumption that some are probably the same as were used by bees for breeding purposes away back before the Civil War of 1861—many years before I was born.

New York City.

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VARIOUS USES WHICH MAY BE MADE OF PROPOLIS

BY DR. L. A. SIMMON

It has often occurred to me that few beekeepers know the value of propolis. It is a resinous substance secreted by plants and trees, and gathered by the bees. It is soft when first gathered, so that the bees may use it to glaze the combs, to repair breaks, and to stop holes and crevices which are smaller than a bee-space. I have even known them to cover the under surface of a wire screen over a super, rendering it air and water tight. Propolis is antiseptic, as are all the resinoids and terebenthinates.

Much of the secret of the cure of foul brood by the Alexander method is due to the bees cleaning up and glazing the cells with propolis. In case of infectious disease in our homes, we clean house and fumigate. The busy bee is none the less wise by instinct. Give bees an old moldy dirty comb and they immediately proceed to clean it up, and then varnish every particle of its surface with propolis, nature's antiseptic varnish and glue.

When hives are neglected for a long time the beekeeper is apt to find more propolis deposited about the angles of frames and covers than is convenient to handle. However, I am always glad to find a good supply, and willingly take the time to save it. I use it for various purposes.

PROPOLIS AS A HEALING SALVE.

When melted and strained it forms a hard brittle mass. Melted and mixed with an equal measure of linseed oil, and boiled for a minute or two, it produces one of the most healing salves. The product is not sticky nor adhesive like a varnish, but is soft, melts with body heat, and is velvety and soothing—an unexcelled dressing for chapped hands or any abrasion of the skin.

This is a stock formula: Equal parts of propolis and linseed oil boiled together.

SHOE-POLISH AND LEATHER-DRESSING.

To any quantity of this stock mixture, add sufficient lampblack to give the desired color, and sufficient powdered graphite to give the shine. Mix thoroughly, and apply with a cloth a light coat. Polish as with ordinary polish, using preferably a cloth polisher. This polish is water-proof, restores the flexibility and life of old leather, and one good application a week is sufficient. The polish may be restored as often as desired, when the shoes have become soiled, by rubbing with a polishing-cloth, as it wears a long time. The first application to an old rough shoe will not polish well; but after it is worked into the leather it will give a lasting polish. This is a valuable formula. Try it, and report results.

Auburndale, Fla.

* * *

ALFALFA-GROWING IN ENGLAND

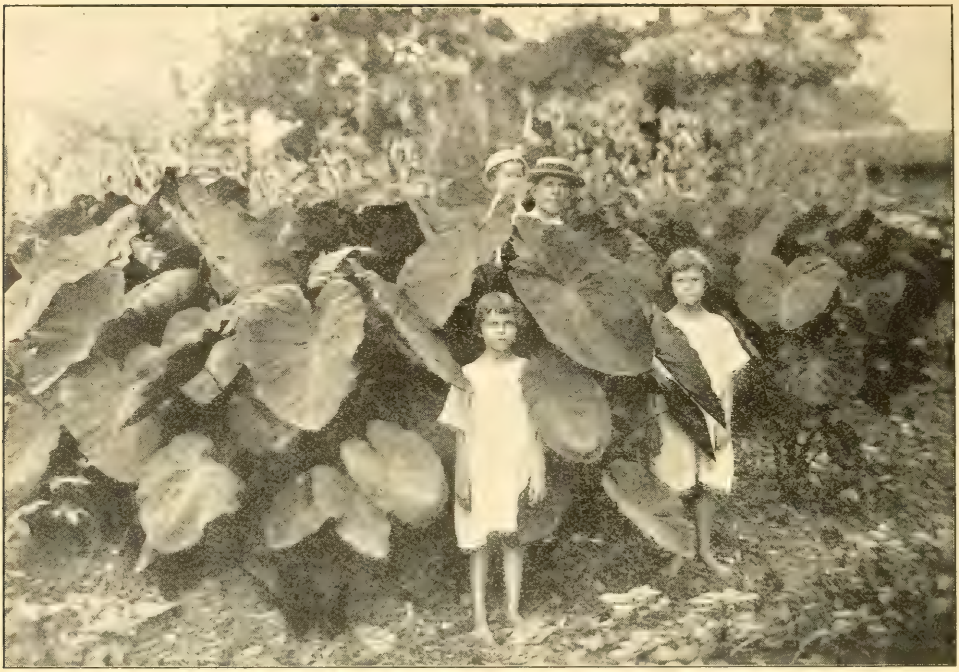
BY B. BLACKBOURN

As we grow a good deal of alfalfa in this part of England, perhaps a few notes on the question of when to cut the crop may be of interest. It is generally understood that the correct time to cut it is just before it comes into bloom. If left longer the leaves at the bottom of the stems begin to turn yellow, due, apparently, to the sunlight being gradually shut off by the growth overhead. The stems themselves become tough and wiry, and in this state are not relished by stock. The second cutting will also be checked, so that it is apparent that there must be a loss in every way, except, possibly, in actual weight.

On the other hand, it should not be cut too soon, as then the alfalfa will not contain the same amount of nourishment, and there will be a considerable loss in weight when made into hay. The first two crops are cut, therefore, when just coming into bloom. The third and last cut is generally allowed to come well into bloom. As this is very much lighter, there is no after-crop to spoil, and we aim to get as much weight as possible. Owing to pressure of other work such as harvesting, the last cut is often left standing longer than it would otherwise be.

Alfalfa is of very little use to *our* bees. There was one exception to this in 1911.

Colored plate of alfalfa from one of the government publications in New South Wales, sent by T. G. Adamson, Nemingha, Tamworth, who also supplied the specimens from which the color engravings were made.



Dasheens 6½ feet in height, grown by Bays D. Cather, Pell City, Ala.

We had a long hot dry summer, and the third cut started coming into bloom when only a few inches high. As the crop would obviously be of little use for hay, I let it stand for the benefit of the bees. They had a glorious time, and I believe they obtained a large amount of honey from this source. Except under unusual circumstances I doubt if alfalfa would ever secrete much honey in this country, owing to the moist climate and the relatively cool summers.

Minster, Ramsgate, Eng., Jan. 10, 1914.

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DASHEENS SIX AND ONE-HALF FEET IN HEIGHT

BY BAYS D. CATHER

I am sending a photograph taken August 22, 1914. These are the dasheens which were carried over winter in the dirt in which they grew. The day this photo was taken, some of them were very near 6 feet in height. To-day, Sept. 5, many of them are 6 to 6½ ft.

In the picture the front shows the little Misses Elizabeth Hart Cather and Eulah Ney Cather, with Bays D. Cather and Bays D., Jr., in the rear, all standing full height.

You will notice that the plants and the dresses are harmoniously tropical.

Pell City, Ala., Sept. 5.

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A SIXTEEN-FRAME HIVE AND THE PROBLEMS IT SOLVES

BY J. E. HAND

THE ECONOMICS OF HONEY PRODUCTION.

While beehives do not gather honey, the fact remains that economical methods of honey production must result from economical principles of beehive architecture. The acme of hive perfection is not merely to furnish sufficient room for breeding and the storage of surplus honey, for, aside from these, there are problems to solve that bear directly upon the economics of honey production, and the hive and system that affords the most economical solution of these problems will yield the greater profits. This refers to the increase problem, the swarming problem, and the wintering problem. It is a deplorable fact that the hives of today are powerless to solve these important problems without resorting to expensive equipment and excessive labor without due compensation, for reasons that will be apparent to those who follow the trend of this discussion.

THE FUNDAMENTAL PRINCIPLES OF BEEHIVE ARCHITECTURE.

The habit of expansion and contraction of the brood-nest is so highly developed in bees that due allowance must be made for this principle in beehive architecture; hence expansion and contraction are the fundamental principles of economical beehive architecture. There are two distinct principles involved, known as " horizontal expansion " and " vertical expansion," and there is a wide difference in the scope of their efficiency. Vertical expansion is chiefly employed to increase the capacity of small hives by tiering up with another hive-body —a relic of defunct sectional hivism that necessitates extra equipment and excessive hive-handling without offering an economical solution of any of the problems mentioned; hence a flat failure from an economical point of view. On the contrary, " horizontal expansion " is the embodiment of principles in beehive architecture that solves every important problem with the utmost economy.

THE HYPOTHETICAL QUESTION.

What is the orthodox limit of expansion of brood-chambers aside from the solution of problems? And how much extra room is required for the solution of said problems? Owing to different conditions existing in different colonies and seasons relative to the amount of honey and pollen stored in advance of present needs, and the amount of drone comb, it is impossible to estimate correctly the number of available breeding cells a hive will contain without seeing it. It is better, however, to have a frame to spare than to restrict an extra-prolific queen, hence in my location the orthodox limit of expansion is approximately 14 L. frames, and an extra capacity of two more frames is required for the solution of the problems mentioned. Viewing it thus, the 10 and 12 frame hives are too large for vertical expansion, and too small for horizontal expansion and the solution of problems; hence they occupy an inferior position in the ranks of economical beehive architecture, for it is the purpose of this discussion to demonstrate clearly that horizontal expansion to a limit of 16 L. frames is the minimum capacity for the more economical solution of the problems mentioned.

THE SWARMING PROBLEM.

Having completed the circle of my experience covering a period of 40 years, during which time I have practiced many different methods of swarm prevention, I am in position to say with a tolerable degree of certainty that *economical* swarm prevention is not a matter of hives or excessive manipulation in shake swarming, removing brood, etc., but, rather, of correct methods of requeening that practically eliminate manipulation, and here is the method: At the approach of clover bloom place all colonies in condition to enter supers by uniting and equalizing, and at the beginning of harvest remove the queen and two frames of brood from a sixteen-frame colony, placing them in an eight-frame hive made of half-inch material, and 12 inches deep. Place a ripe queen-cell in a cell-protector, between the combs of a queenless colony, removing any queen-cells that may be found while looking for the queen. This will prohibit swarms while keeping the brood in tact, and maintain a normal queen-right condition — a psychological condition of contentment and satisfaction that encourages bees to do their best work and lay the foundation for a simple solution of the increase problem.

THE INCREASE PROBLEM.

Unlike the swarming problem, the increase problem is purely a matter of beehive architecture relative to size, for extra large hives are imperative, and here is the method: At the close of basswood harvest, after securing the honey crop, cage the queens in the nuclei just mentioned, and take six frames of brood with adhering bees, from each sixteen-frame colony and place them in each nucleus hive, which will now contain eight frames and the parent colonies ten, and both have laying queens, and will be in condition to do good work on buckwheat and fall flowers. This method gives 100 per cent increase in connection with a full crop of honey with little manipulation, and in turn facilitates an equally economical solution of the wintering problem.

THE WINTERING PROBLEM.

The economical solution of the wintering problem is also a matter of correct principles of beehive architecture relative to hive capacity and correct methods of expansion and contraction; hence 16 frames is the minimum capacity for the more perfect and economical solution of the wintering problem. Here is the method: About September 20 is the time to place bees in winter quarters. Choose a warm day when bees fly freely, and place each eight-frame division mentioned under increase; hive bees and all on the floor inside of a sixteen-frame hive, the frames extending lengthwise with said hive, thus creating a space of approximately 3 inches between the walls of the two hives, and the extra depth of the inner hive creates a space of $2\frac{1}{2}$ inches under the frames, while a sixteen-frame super holds 7 inches of packing on top of the winter nest. The parent colonies are treated in like manner without changing the outward appearance or position of the hives. A three-inch flat telescopic cover keeps them snug and dry, and the whole outfit costs $2.50 in the flat at a local planing-mill, made from a good quality of cypress lumber. This lumber is inclined to warp, hence should be painted and corners double-locked to nail both ways.

It is thus that correct principles of beehive architecture minimize the cost of honey production by eliminating expensive equipment and excessive manipulation; and it is thus that the sixteen-frame convertible hive is so thoroughly competent, and the system so well organized in every detail, that the solution of one problem materially aids the solution of the next, thus greatly facilitating the solution of important problems. The fact that this hive excels in the legitimate office of honey production as well as in the solution of problems proclaims it an important improvement in beehive architecture. After another season's experience with these hives I can suggest but one improvement, and that relates to the supers which have a capacity of approximately 90 lbs., making it extremely difficult to manipulate the brood-chamber when the supers are full. In view of this contingency we are considering the advisability of using two eight-frame supers with half-inch sides which exactly fit the brood-chambers. A slight modification will also enable us to use them in winter also, and still maintain the deep inner chamber. This modification consists of leaving a part of one side open and placing the open sides together on the hives; this modification will be tested next season. Meantime, what few colonies we keep are all in sixteen-frame convertible hives. My brother beekeepers, it is your privilege to eliminate winter losses and minimize the cost of honey production through correct principles of beehive architecture.

Birmingham, Ohio.

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THE SIZE AND SHAPE OF BEEHIVES

Some Advantages of a Square Hive Allowing the Super Combs to be at Right Angles to the Brood-combs if Desired

BY CHARLIE A. BROWN

The ideal hive is that one which gives to the bees a substantial home, and at the same time yields to man the greatest convenience in management of the bees. Doubtless a hollow tree, with sufficient space for a large colony, is an ideal home for the bees so far as their own welfare is concerned. It is warm in winter, cool in summer, with half-decayed wood to absorb the excess of moisture. But for man's convenience and profit bees must be kept in some sort of hive. Many different kinds of homes for the bees have been invented and are in use; but, so far as I am able to discover, there are only about three separate principles involved in all of these, the Aspinwall hive being an exception.

These three principles or ideas in hive construction are, perhaps, best represented by square frames, oblong frames, and sectional hive-bodies. For the last few years I have had in use all three kinds, and I am satisfied that none of the three is just the ideal.

My sectional hives have frames $7\frac{3}{8}$ deep, Langstroth length. Such hives in Texas, working for bulk comb honey, may be all right; but for California, running for extracted honey, I don't like them.

I also have in use 200 hives with frames $11\frac{3}{8}$x$11\frac{3}{8}$, 13 to the body. These make a good brood-nest; but I do not like the square frames for extracting purposes. There is no use offering reasons for not fancying either of the above styles of hives, as the arguments against them are well known to the beekeeping public; and it is pretty certain that neither of them will ever become the universal hive.

The Langstroth frame, to my mind, is the ideal except for one little thing. In fact, so far as the frame itself is concerned it is just about the right shape and size for handling; and in actual practice bees winter and breed as well on Langstroth combs as any other. My objection is this: A square hive made to hold frames of Langstroth dimensions is too big to handle, and that brings me to the point where I must tell you that I believe the ideal hive, when discovered, will be a square one, about Langstroth depth. Now, don't be too hasty in your conclusions. "There's a reason."

All are agreed, I think, that the ten-frame L. hive leaves something to be desired. The eight-frame is not worth considering. It comes pretty near being no hive at all; and if the ten-frame L. hive is not ideal, is the 11, 12, or 13 frame what we want? I do not think that any of them are ideal; but I do think they will be, and rightfully so, the universally used hive unless a practically perfect one is found.

In working for extracted honey I have found that bees, in a good honey-flow, with the combs in the super running at right angles with those in the brood-chamber, are inclined to fill and cap the outside combs first, finishing toward the center. If, by having the section-holders run crosswise of the combs below, they will do this when producing comb honey, we have found something worth knowing. I have never known bees to make ready for swarming with empty comb right over their brood unless a queen-excluder happened to be between the two bodies; but it is no uncommon thing for them to swarm with an empty comb at the *sides* of the hive. Now, if it is a fact that they will not swarm with empty comb over their brood-nest (and I believe that under ordinary circumstances it *is* a fact), and if, later in the season, after they have settled down to work in the section-super, they will not swarm with the sections of foundation over the center of the brood-nest, it is certainly very desirable to have them work from the outside toward the center, for in that case we can always give room and prevent them from ever getting the central part of the super finished until the season is closing.

I have never known bees to work from the outside toward the center except when the combs in the super run at right angles to those in the brood-chamber; hence my belief that the hive ideal will be a square one (about Langstroth depth), so that supers may be turned either way. A hive 20 x20 in., which would be a square Langstroth, would take 13 frames. Such a hive is too large. I venture to say that very few people would want one of that size. Further, there are very few queens that could keep such a hive filled with brood—not one in a hundred, I think.

Three years ago, when I had come to the conclusion that a square hive would possess advantages not found in any other, I made one, 18¾ x 18¾, outside measure; cut down in length enough of the regular L. frames to fill the bodies, which just nicely take 12 frames in the brood-chamber (of course I use less in the supers), and so far I am highly pleased with that hive. It is about the limit in size, being equal to an eleven-frame Langstroth, which is just about right for the average good queen.

The best queens I have been able to produce will use from nine to eleven L. frames if they can have their own way. If I were starting again into beekeeping I should want either an eleven-frame Langstroth or the 18¾x18¾ square hive.

Any hive, to become the universal one, must be large enough to give reasonable chance for swarm control; it must carry an extracting-super, the combs of which are interchangeable with those of the brood-chamber; and if with this square hive one can put bait sections in the four corners of the section supers, and thus have the bees work from the outside to the center, as they do with extracting-combs, in a good flow I certainly think the square hive will make good with all who try it. Why bees are inclined to work from outside to center when super combs run crosswise to the ones below, I don't know. There are many facts in nature for which human beings cannot account. During a slow flow bees are more inclined to put the honey directly over the brood-nest, even with this cross-comb arrangement; but not so in a fast flow—especially if the brood-combs are at right parallel angles with the entrance.

I wish that some of our leading comb-honey producers, or, more properly speaking, section-honey producers, would try this hive, 18¾x18¾x9⅝ deep, outside measure, holding 12 frames 9⅛x16⅜. Place it on the bottom-board with frames parallel to the entrance, or try it both ways, remembering that the combs or section-holders in the super must run crosswise of the combs below. Put the bait sections in the corners, and note what happens. If the bees will work from the outside to the center in section supers, I think possibly it will prove to be the hive ideal, for it is large enough, though I think not too large to be practical. The frame, I think, is not enough smaller to lose any of the Langstroth principle; and if ever any hive proves to be superior to a ten or eleven frame Langstroth, I make a guess that it will be just such a hive.

Piru, Cal.

A LARGER STANDARD HIVE

A Square Hive 20 by 20 Inches Advocated

BY A. N. CLARK

The ten-frame hive-body has long been the most popular general-purpose hive for those producing both comb and extracted honey in the same apiary, and may long continue in this role, while the eight-frame size leads among comb-honey specialists. But the extracted-honey specialists, who realize that both eight and ten frame brood-chambers are too small for them, are using, some twelve, some fourteen, and a few seventeen, frames. As yet we have no recognized *standard* above ten frames. The time seems ripe for such a standard. What shall it be?

The eight and ten frame hives are 20 inches long, outside measure, so I suggest that the larger hive for extracted-honey specialists be made 20 x 20 outside measure. Such a hive-body holds thirteen frames. Being square it can stand on the bottom-board with frames either at right angles to entrance or parallel to entrance; and *this adaptability to quarter rotation on bottom-board is no small advantage.*

Mr. A. C. Miller places frames parallel with entrance; most other people place them at right angles to the entrance; but if one can place them either way as he may elect, without any change in bottom-board construction, you will see a number of beekeepers following Mr. Miller's plan at least a part of the year.

Some extracted specialists, like Mr. Holtermann, for instance, use a twelve-frame body; but why not make it one frame more and have the advantages of a square body?

I do not believe that thirteen frames is too large for a fairly good queen in an average locality. The best yield per colony, and least labor per pound of honey, that I ever obtained, was from hives with fourteen frames in the brood-chamber.

Other advantages of the 20 x 20 body are stability against wind, and symmetrical appearance; a two-story hive being an exact cube, 20 x 20 x 20, when the cover is ⅝, and zinc-excluder rim ⅜. Who can imagine a more practical and sensible shape than a cube for economy of construction, manipulation, and saving of bee travel?

Lansing, Mich.

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THE POSITION OF THE HIVES IN THE APIARY AND THE HANDLING OF HONEY

BY THE OUTLAW

With my bees on the roof, the accessibility of the bees and the handling of the surplus honey could not very well be more inconvenient. But as with me it is only a hobby, and the matter of using a little surplus energy, these points are not essential. I should hardly care to change them, even if I could. In pondering over the above facts, I think I have discovered a reason why apiarists throughout the country have their hives situated in awkward places, and use the crudest kind of methods in handling surplus honey. This reason is that most beekeepers start with a colony or two; and the manner in which the honey is handled, and the situation of the hive, are of minor importance. As time goes on, and the number of their hives increases, they continue in the manner to which they have become accustomed. An example is the manner of handling honey as advocated by the late Mr. Alexander. He carried combs, when extracting, in a box in his hand, and poked them through a hole in the side of his honey-house, and advocated it as a good method of handling honey. At several large apiaries in California which I visited several years ago I found that two boxes the size of supers were fastened on the bed of a wheelbarrow. In these were placed the combs on taking them off the hive. On entering the honey-house, the full combs were removed and replaced with empty frames, the boxes being nailed to the wheelbarrow.

In the arrangement of the apiaries throughout the country are continually found examples of the worst possible methods. Some place the hives in inaccessible places, or on ground which is so rough that it is almost impossible to run a wheelbarrow; or, again, you find the hives so close together that they have to be worked from the back instead of the side, or else scattered out from 10 to 20 feet apart. Again, we find them so situated that, when working one row of hives, the apiarist is directly in the flight of the bees from another row. A good deal of space might be used in discussing the bad features found in the foregoing illustrations; but I consider it far better, in place of so doing, to give my idea as to the points that should be observed in the arrangement of the hives and the manner of handling the products.

REQUISITES OF A PROPERLY ARRANGED APIARY.

The first requisite in arranging the hives is to have them so situated that it is always possible to work toward the honey-house. At some seasons of the year it is often necessary to go over 15 or 20 hives before securing a load of honey; and the distance that the completed load is to be conveyed will amount to considerable, depending on whether the distance traveled is away from or toward the honey-house. This problem is easily solved by having the rows of colonies radiate from the door of the honey-house, and then always going to the far end of the row and working back. Another feature is to place the colonies, whenever possible, in double rows, back to back, and at a distance of 5 or 6 feet from the back of one row to the back of the other. Although this plan may not be feasible in many northern localities, there is no reason why a colony in any of the southern countries should be placed otherwise. Were I to have the management of an apiary in the North to-day I would at least try the experiment of having rows of colonies turned back to back during the summer months, then turned so as to face east or south during the winter months. I know that many will object to the foregoing, there being a prevalent idea that entrances opening otherwise than to the sun, or if the colonies are placed in the shade, they do not give as good results; but I think this is in a great measure a fallacy. I once paid particular attention to some 150 colonies, 75 of which were in the sun and facing the south, and the other 75 being in the shade and facing north; and the result of my observation was that one row of colonies did just as well as the other. At another time, in one of the Western States, I became acquainted with a man who was, and still is, an extensive producer of honey. He had been a student under James Heddon, and used often to tell the story of how Heddon had a colony under an apple-tree. The colony was absolutely worthless—never did produce a pound of surplus honey. It was the custom of Heddon to send the students to examine that colony and then ask for a report. On being told that the colony was doing nothing, he would tell the students that the reason was that the colony was situated in the shade. On this same point, however, during the season of which I speak, and at an apiary managed by a former student of Heddon, strong evidence was brought to this man to show that there is very little in the shade theory. As it happened, he took an apiary belonging to a farmer to run on shares. The farmer had started his apiary by catching runaway swarms, and knew nothing of beekeeping. However, he had bought hives already fitted with foundation starters, and his bees had fairly straight sets of combs. All the colonies were placed beneath apple-trees—big spreading trees which had never been pruned. In fact, the hives were situated in about as dense shade as it is possible to find. Now, whether it was the fact that these bees were situated in the shade, or whether it was a good honey locality, or whether they were a particularly good strain of bees, is something I cannot definitely state; but I do know as a fact that these bees, per colony, produced about double the yield of those of the other apiaries managed by the gentleman in question, and he managed some 14 apiaries. Not only that, they continued to do so over a period of years.

HANDLING HONEY FROM THE HIVE TO THE HONEY-HOUSE.

In the manner of handling honey, the place where system and appliances count the most is in a yard that is run for extracted honey. The first thing to be considered is the vehicle, as I do not consider the Armstrong (Alexander) method worthy of consideration. To my mind, there is nothing that is to be compared with a wheelbarrow of the Daisy type. The average man can with ease handle four full ten-frame supers of honey, and can go over the ground with more speed and ease than is possible with any wagon or cart. In some apiaries I have found it the custom to wheel one super at a time, in others two, and, again, I know some husky fellows who never think of starting for the honey-house without six full supers of honey as their load. The best manner of arranging the super on a wheelbarrow that I know (and I think I have seen and tested every possible arrangement) is to place the supers in two tiers, the combs running crosswise of the wheelbarrow. If an ordinary Daisy wheelbarrow is used a brace should be placed perpendicular to the bed of the wheelbarrow against which the supers rest, and should extend about two inches above the second super.

Perhaps it will not be out of place to describe the method of filling the supers. To start, remove the top super of the front tier, thereby exposing the bottom super. Shove all the combs to the back of the

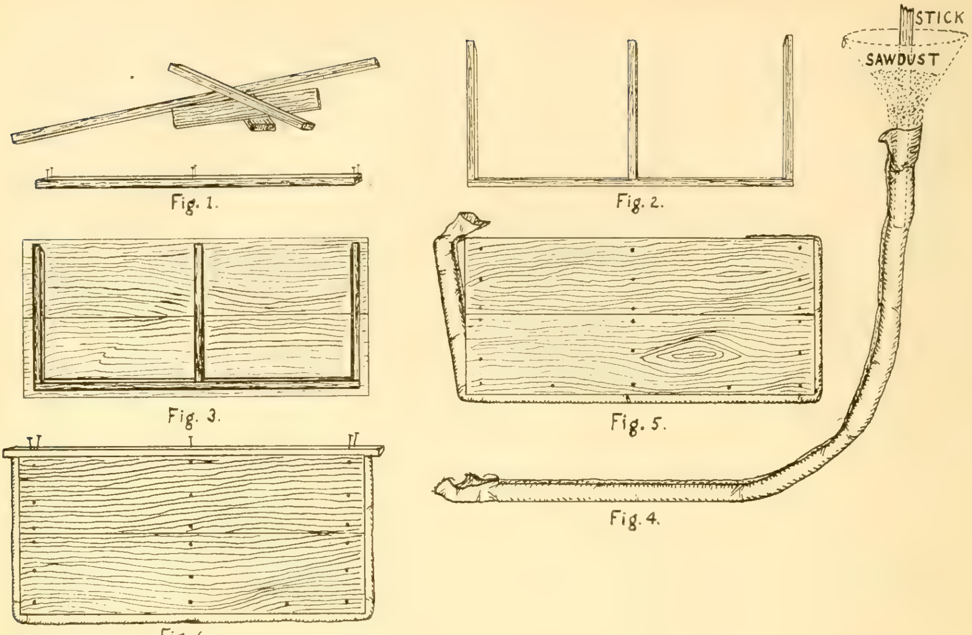


Fig. 1. Fig. 2. Fig. 3. Fig. 5. Fig. 4. Fig. 6.

A new and simpler way of making chaff division boards. See editorial.

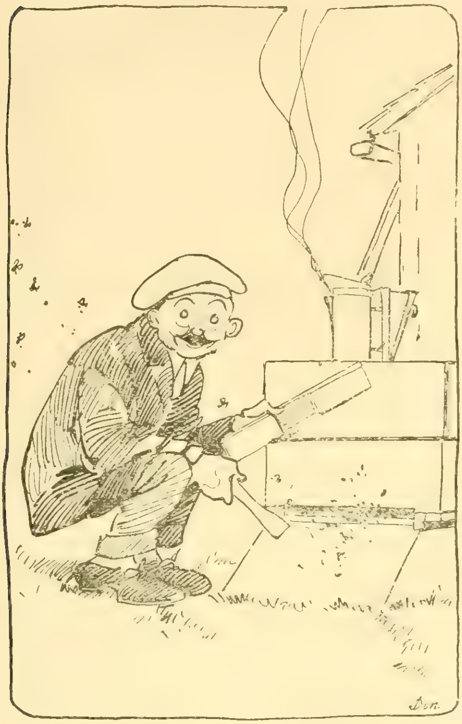
super toward the handles of the wheelbarrow, leaving the forward part empty so that the full combs of honey can be placed there, making one movement from the hive with the frame of honey and taking an empty frame on the return motion to the hive. When the bottom super is filled, replace the super that has been removed and fill it. The next move is to take the top super from the second tier and place it on top of the front tier, and fill the bottom of the second tier; and here is where the two inches that extend above the second super come into play, as this brace keeps the super from sliding off over the front of the wheelbarrow when it is moved from colony to colony.

ARRANGEMENT OF THE INTERIOR OF THE HONEY-HOUSE.

In the arrangement of the honey-house there are several points to be observed, the first being to have combs moved continually in one direction, or, better, in a circle, preferably to the right. When the supers are unloaded from the wheelbarrow they should be stacked so that the man who is uncapping stands just to the right with his uncapping-tank directly in front of him. The apparatus for containing uncapped combs should be just to the right of his uncapping-tank, and the extractor to the right of the uncapped combs. The extracted combs on being removed from the extractor should again be placed to the right, and in this way every thing works smoothly, nothing is mixed, and there is no lost motion.

Another matter is the uncapping-tank. Where there are several hundred colonies in an apiary it is advisable to build a big permanent uncapping-tank; but where the apiary consists of a hundred colonies or less, such is not necessary. The best temporary uncapping arrangement that I know of is made of three ordinary supers. On one of the supers nail a one-piece cover and then run a little melted wax in the cracks so that it will not leak. On the next super fasten a piece of ordinary wire window-screen and place this on top of the first super, the first super acting as a tank to hold the honey which drains from the cappings; then place the third super on top of the second one, thus making it a convenient height for the average person to work over. On this third super should be placed a $\frac{3}{8}$-inch board about four inches wide, cut so that it will rest sound on the rabbets. Two cross-pieces should be nailed to this, that just fit across the super, thus making a solid place on which to stand the combs while uncapping them. This apparatus can be constructed in twenty minutes by a man who is handy with tools and makes an adequate uncapping-outfit; and at the completion of the extracting it takes only a few moments to make the supers again ready to be used for their original purpose.

Heads of Grain from Different Fields



THE BACKLOT BUZZER

The last report from the amateur who named his bees after the great European nations and then left a comb of honey lyin' on one of the hives, was that the Belgians were still holdin' out.

A New Reason Why Bulk Comb Honey Should Not be Called ''Chunk Honey''

Having about 1000 lbs. of surplus honey to sell, I decided that it pays to advertise, so the following advertisement was inserted in our local daily papers with instructions to let the advertisement run 30 days.

> FOR SALE.—Fine fall honey, goldenrod and Spanish needle flavors. Rich, thick, and delicious. Phone your orders. Price of section honey, 5 lbs. for $1.00, delivered; chunk honey, 16 2-3 cts. per lb.
> HILLCREST FRUIT FARM.

What was my surprise when a customer gave me an order for 5 lbs. of section honey and asked what kind of honey "*skunk*" honey was, as I also had advertised that. Skunk honey! Upon investigation I found that the advertisement really did read "skunk honey" for chunk honey. Now our reputation is badly perfumed for advertising a really superior article. I hardly see how a careless typesetter could make a mistake on the world "bulk;" but *chunk* can be made into *skunk*, and now nobody wants our honey.

Our experience has been that the average consumer is not so critical as to the appearance of honey as he is regarding the quality. We have been able to realize as much per pound for bulk comb honey in many instances as we have for section honey.

The bulk comb honey was produced in shallow extracting-frames, and sold in 3 and 6 pound paper butter-dishes with oil paper for lining and inside wrapper. We have a demand for all we can produce of this kind of honey at 16 2-3 cts. per pound. This is considerably more than the section-honey producer realizes for his fancy white at wholesale prices.

We find several advantages in using the shallow extracting-frames with full sheets of foundation. First the bees start work in them more readily than in the section. Second, they are very easily removed from one hive to another, and a few bait combs are all that is necessary to start work in the super. Third, the frames can be used year after year, and are as easily stored as are the sections.

Washington, Ind. S. H. BURTON.

Why Bees Leave the Hive to Die when They Grow Old.

A gentleman who was not a beeman recently made this query, putting two questions in one:

"I have heard that old worker bees leave the hive to die. If this is true, what is the physiological principle underlying the act?"

To confess the truth, I felt that, to use a slang expression, I was "up against it." The explanation I made was that which has been suggested in our bee-journals by our supposed doctors of apicultural science, that, when the bee has grown old, when her wings are badly worn, and she realizes that she cannot further do her share of the work of the colony, she merely crawls out into the world to die, placing herself out of the way of the work of the colony, thereby ceasing to retard progress. This explanation in no way fully covered the ground nor gave a definite reason, either to my mind or to the mind of my questioner.

Feeling the importance of the question, or, rather, of a correct answer, I began to theorize, trying to find a scientific reason; for to my mind there is a different dominating power behind the act than that the worker leaves the hive to die for the reason that she is old and not able to work longer, and desires to get out of the way. The departure of the old bee is due to the hostility of the younger bees in the hive; her leaving is justified, and transfers the responsibility to the inmates of the hive.

If, then, the blame is to be placed on the younger inmates of the hive, the dominating cause is to be found back of the bees which perform the hostile acts. The bees would hardly chase out a faithful worker ripe with toil just for the sake of rejoicing in the light-hearted act.

There is something more. It seems to me that it is due to a physiological interruption of the bees' existence, both mentally and physically, in compliance with a natural law governing the perpetuation of its species.

To illustrate, a hen does not sit because she feels it her duty, but because she cannot help herself. When the hen has laid her quota of eggs, interruption, both mentally and physically, takes place. The hen becomes broody, not because she desires to, but because she is overcome by a natural impulse. Nature designs this as a purely necessary act to perpetuate the species; and to my mind just such an impulse is the dominating factor governing the bee.

Bartlett, Tex. T. P. ROBINSON.

''Laying Worker Caught in the Act''

In GLEANINGS of November 15, 1912, p. 720, I noticed that Dr. Miller had seen laying workers in the act of laying. I, too, have seen them laying. I was looking for laying workers on a comb, when my attention was attracted by a bee walking backward. I watched that bee, and was surprised to see her lay an egg, after walking in a small circle backward. I saw her do this four times, and each time she either walked backward or turned around two or three times. She did not select a cell and place her abdomen in it carefully, as a queen does, but just pushed her abdomen in anywhere; and she took only about half the time to lay an egg that the queen does. DOUGLAS BREARLEY.

Subiaco, Perth, W. A., Nov. 12.

Honey from Bitterweed

I have made a few observations during the present season that may be of interest to the beekeeping fraternity. First, the drouth from the last of April to the first week in July was so severe that wells dried up that never had failed before, and farmers had to haul water.

The bees simply sulked, and subsisted on what they had gathered in the spring. No hive could be opened because of robbers, and my table saw no honey until last week.

In July we had a few light showers, and the bees went to work on smartweed, Spanish needle, partridge pea, and cotton. They stored about one shallow super to the hive of a very dark but pleasantly flavored honey. Then the drouth returned, and in their desperation the bees worked on the yellow dog-fennel, or bitterweed, that infests our pastures, and makes milk too bitter for drinking. The result was sheets of the most beautiful honey I have ever seen. It is clear, and of a bright canary color, but bitter and uneatable. Fortunately they stored it in separate combs from the dark honey, which rarely had a trace of it. We had to taste every comb before uncapping, so as not to taint the extractor. So I have learned that, at least sometimes, the bees store different honeys separately. I at once replaced the beautiful bright golden comb on the hives for winter feed, three combs to a colony. I know the weed is not unwholesome, for I have often drunk milk that was not quite too bitter from it, and kittens thrive on such milk.

THE BEES KNEW THEM.

One more queer circumstance in line with the color discussion has claimed my attention for weeks. A dark bay mare with black mane and tail, together with her almost grown brown mule colt, grazed day after day among my thirty hives without being annoyed or stung. My hives stand in pairs with about eighteen inches between them, and I have often seen those animals grazing those narrow spaces, and yet, so far as I could judge, the bees did not object, and they are hybrids. My manager, who owns the mare, thinks it is because the bees have known the horses always, and the horses do not shake their heads nor show fear of them. The most incredible circumstance is that no strange horse or mule can graze near the apiary, though outside the fence, without being attacked. As Dooley says, "There ye arre." No, Mr. Editor, you do not have to believe this yarn. I hardly think I would believe it myself if I had not seen it; but it's true, all the same.

Florence, Ala., Sept. 24. H. A. MOODY, M.D.

Use of Propolis in Dressing Wounds.

It would appear that some use has been found at last for propolis, which we beekeepers could more fully appreciate if the sticky stuff could be stored in a mass in some particular place instead of being smeared about. The following is taken from the *Scientific American* of Nov. 1, 1913:

"PROPOLIS FOR SURGICAL DRESSINGS.—The resinous substance collected by bees from the buds of trees, and used by them to stop up crevices in the hives, has just received a novel application in surgery, according to *L'Illustration.*

"When this viscous substance is distilled in the crude state there is obtained a brownish liquid of unctious consistency known as propolisine. When this is applied, either pure or mixed, with 25 to 30 per cent of vaseline, to the surface of a clean wound, this is covered with a sort of isolating (insulating?) varnish which has an immediate soothing effect, and in whose protection healing takes place under the best conditions. Parvel and Meyer, who have been experimenting with it, affirm that it is very useful in surgery, and, when used on battlefields, generally prevents septic and infectious complications."

I venture a prediction that the supply will always equal the demand. Now, who wants to buy?

Hoboken, N. J. C. D. CHENEY.

Smoke Plan of Introduction Unsuccessful.

I note that Mr. Miller claims that his smoke plan of introduction is always successful. It has been a failure with me except in a few cases. Here are some of my experiences.

On the morning of August 21 I removed one laying queen from No. 78, and two laying queens from No. 34. In the evening of the same day I introduced laying queens from nuclei to these two hives by the smoke method. On Aug. 22 I found the queen in No. 34 dead, and queen in 78 balled. I released the queen and smoked the bees and closed up the hive for ten minutes again.

On Aug. 24 I looked into No. 78 and found the queen still balled and queen-cells about ready to seal. I smoked the bees away from the queen, and she seemed to be all right.

I then removed the queen from No. 15 and introduced this same queen to this hive by the smoke plan; but on looking into the hive a couple of days later I found the queen missing and cells started.

I used dry rotten wood for smoker fuel.

There was plenty of honey coming in, and no robbing was going on; but there was some swarming. ROBERT WATT.

Mt. Carmel, Ill., Sept. 8.

Cane Sugar Better for Candy.

In regard to the trouble so many have with feeding hard candy, let them take a tip from a professional candy-maker, and use only cane sugar—*never beet sugar.*

Seattle, Wash., Sept. 11. D. D. WHEDON.

The Honey Harvest

BY GRACE ALLEN

Harvesters of wealth of wheat, yellow corn, and oats,
Garnered where the heavy heat in waves of wonder floats,
What have you in all your harvest, what in all your fields,
Like unto the honey that the soul of summer yields?
There's miracle and mystery within your golden grain,
The earth is in it, and the sun, and all the rushing rain.
But mystery and miracle and rushing rain and sun
Are all within the honey and the tale not well begun!
There's liquid light that shimmered through the perfumed-haunted hours,
There's essence of the romance and the passion of the flowers;
There's fragrant warmth and winsomeness, with every drop agleam
With the tenderness and magic of a summer-hearted dream.

A. I. Root OUR HOMES Editor

We be brethren.—GEN. 13:8.
Peace on earth, good will to men.—LUKE 2:14.
Thou shalt love thy neighbor as thyself.—LUKE 10:27.
In honor preferring one another.—ROMANS 12:10.
By this shall all men know that ye are my disciples, if ye have love one to another.—JOHN 13:35.

Our eldest daughter, Mrs. Calvert, always has "good luck" with chickens. She sticks to the Barred Plymouth Rocks, while the four other children have all sorts. Some of them have paid large sums of money for the best grades of the different varieties of fowls. But Mrs. Calvert gets the eggs; and even while her hens are moulting, they always lay more or less; and when the neighbors are out of eggs they can always get some of Mrs. Calvert. I hardly need tell you that the secret of this is that Mrs. Calvert's hens are always well fed and cared for. They never suffer for the lack of water. They know her, and she knows them. I think I might say they love her, and she loves them, and therefore she gets the eggs. There is one other daughter (I will not tell which one it is) who also keeps chickens, or her husband does—that is, he keeps them after a fashion. I do not think he will get mad even if he should happen to read this, for he is a great big good-natured sort of fellow. Well, he is sometimes away from home, and the hired girl is expected to look after the chickens. Now, do not imagine that I am reflecting on hired girls as a whole when I say this, for some of the best friends I have in the world are hired girls.

Let me now digress a little, as I often do.

When I first became acquainted with Mrs. Root, when she was fifteen years old, her good father did not take much of a fancy to my poor eccentric self; but as years passed, and I showed him the microscope (microscopes were a hobby with me at the time) he began to take more kindly to me; and after Mrs. Root and I were engaged he once volunteered something as follows in regard to the young lady. Said he:

"Mr. Root, you may be sure that no person nor any domestic animal will ever go hungry when Susan is around. Her special forte is to see that every thing is well fed and comfortable, etc."

He might also have added they will have plenty of good water to drink.

I have told you how Mrs. Root "gets mad" when she cannot have plenty of good pure air. Well, it is so in regard to good pure cold water; and one of her hobbies is that the domestic animals shall have plenty of *good* water. If the horses are tired and thirsty she keeps urging us to stop and give them drink. If the chickens act uneasy as if they wanted something, she will say, "Are you *sure* they have plenty of good water?"

Not long ago a pen of Rhode Island Reds not very far from our home rushed up to the poultry-netting fence when she happened to be near the yard, and acted as if they wanted something. She crossed over to the neighbor's, looked in the fowls' water-pail, and found it was entirely empty, and had been so, nobody knows how long. The folks had forgotten all about the chickens; and, although they have a larger flock than Mrs. Calvert, it is the same old complaint—"the hens don't lay."*

May be you think, friends, that since I am within a few days of being 75 years old, I have forgotten myself, and put that string of texts over the Poultry Department; but don't you worry. I will get to the texts in due time. But I have not got through with poultry yet. *Our* chickens are down in Florida. We do not keep any here in Ohio, so we have to buy our eggs; and the place to get them, as the neighbors all agree, is of Mrs. Calvert. She not only has some eggs to spare, but they are larger eggs than any other eggs in our neighborhood, always fresh and fine flavored, and, as a matter of course, Mrs. Root went over to get another dozen eggs, and the conversation was something as follows:

As this is moulting time, eggs are up in price. They are quoted at 27 cents. That is what the grocers pay. They pay 27 and sell for 30. So Mrs. Root tendered her daughter 30 cents for a dozen eggs; but Maude said:

"Oh! no, mother. Eggs are quoted at only 27 cents, and I am not going to take more than that."

"But," replied Mrs. Root, "the 27 cents is wholesale. If we go to the grocers we have to pay 30 cents, and even then we do not get eggs like yours here. You keep the 30 cents."

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* While reading the proof of the above it just occurs to me that there are two things I failed to mention. The first is, that when Mrs. Root carried them a pail of nice fresh clean water they drank and drank and *drank*, as if they never would get enough nice cold water. The second point I started out to make is that the daughter Maude is a "chip of the old block." (Recall what the good book says about the "third and fourth generations.") May the Lord be praised for the promising "chips" that our good mothers have scattered throughout our land, and, I trust, throughout the whole wide world.

But Mrs. Calvert replied, "Well, if I take 30 cents I am going to give you more than a dozen eggs."

I really do not know how they settled their differences. I am not particularly interested, in fact, in regard to the outcome. What interests me is that Mr. Calvert, who overheard the discussion, came forward at this crisis, and, going up near his mother-in-law, he looked down at her with his genial and contagious smile and said:

"Mother, if all the world could settle their transactions in the way of buying and selling as you and Maude do, what a happy world this would be to live in!"

Now, friends, I am sure you can see here where the texts come in—the first one particularly, and I rather think all the rest. If all the world could feel toward each other as mother and daughter usually feel (and all *ought* to feel), would not this world be a happy one indeed?

When Mrs. Root repeated to me the little incident it was a rebuke and a reproof to my poor self. Once in a while I get to feeling so kindly toward this old world that I come pretty near loving my neighbor as myself.

When keeping chickens down in Florida, especially about moulting time, when eggs hardly pay for the feed, I can hardly help feeling glad when they get up to 40 or 45 cents. Well, later on, when the hens get to laying, and the price gets down to 20 cents, I ought to feel glad also, because it makes it easier for poor people, and I *do try* to feel glad.

Last winter I was hunting for a peculiar kind of clasp envelope in which to put the dasheen tubers for the readers of GLEANINGS. After hunting all over the town, I finally found something I thought would do, and took a sample home to try. The young printer (recently started), before he found just what I wanted, spent quite a little time in overhauling things on the top shelves, etc. He was a busy man; and instead of waiting for the few cents change coming to me I told him to keep it for the bother he had been to in *hunting up* what I wanted. His face softened into a smile, and he seemed astonished to find a customer who was willing to pay more than the price named, even if he did have to stop his presswork to wait on me.

I have told you once or twice about a beekeeper who was going to have an extensive lawsuit with a certain wealthy man who declared the bees a nuisance. When the lawsuit was under full headway the beekeeper's daughter and the rich man's son (regardless of consequences) fell in love with each other. The two fathers stormed and scolded; but the young people came out ahead, and the two belligerents shook hands and became from that time forward the *best friends in the world.*

You may suggest that it is all right for relations to stick together and "do good, and lend, hoping for nothing again." But when I undertake to declare the great outside world should deal with each other, say like mother and daughter, I have a big job on hand. Yes, my friends, we have a *big* job on hand, and I willingly admit that it is something that can never be accomplished in this world without "the love of Christ that constraineth us."

Our various secret societies have undertaken to do what we are considering, without the help, or any particular help from Christianity. But I object, and always have objected, on the ground that all secret societies discriminate against some and in favor of others. I always reply that I cannot consent to join any thing that does not embrace the whole wide world. I belong, body and soul, to Him who said, "Love ye your enemies, and do good to them that hate you."

Just now there is a lot of jangling and differences in the way of getting the necessaries of life from the producer to the consumer. If the producer and consumer could get together with the same feeling that I have mentioned between mother and daughter, what a relief it would be! There would be no room for crowding, no room for bribes and bribe-taking, no room for stealing, because nobody would want that which he had not honestly earned. Let me digress again.

There is in the city of Cleveland a husband who, with his wife, came here several years ago from the old country. Perhaps on account of prejudice they had a notion that our banks are not safe. They had together scraped together about a thousand dollars, and were looking about for a little home they could buy. To be sure and have it safe, the wife carried this amount of money in a pocket in her clothing, and in some way the secret got out. Two burly men invaded the home when the husband was away, knocked the woman down, and secured the money. Then a discussion arose as to whether they had not better kill her, for fear she might identify them; and this poor woman, to save her life, feigned death. One of the burglars suggested that he give her three or four strokes with his dagger to make *sure* she was dead. The other gave her a brutal kick, and said, "Oh! she is dead all right. Let us get away." What do you think of the wretches who took the honest earnings of these two poor hard-working people? How does it come that there *are* such people? and especially how does it come that we have so many cases reported almost as bad as the above, almost continually, in the great city of Cleveland? I reply as I have replied before, that it is the outcome and legitimate fruit of the saloon traffic. This Home paper will not meet your eye, probably, until after the campaign that is now stirring the State of Ohio as it hardly ever has been stirred before, is over. While I write (Oct. 14), God only knows the outcome. Now, friends, is it possible that any one can vote wet who has the feeling in his heart toward his fellow-men, such as I have tried to picture in the outset between daughter and mother in this little story? Is there any thing in this whole wide world that will ever root out self and selfishness, that will do away with wars and rumors of wars, as will the gospel of Jesus Christ that we are endeavoring to plant among all people all over this whole wide world of ours?

There is considerable complaint along the line of the high cost of living, to the effect that grocers are charging too much; and when it is sifted down it seems that, since the advent of the free delivery of groceries, and every thing else, that grocers *must* charge a higher price. To illustrate this, yesterday's daily told of a merchant, I think somewhere in Kansas, who had two stores side by side. From one of them one could order by telephone and have the stuff delivered. From the other store, however, he must take a basket and go to the store and get his stuff, *pay cash,* and carry it home in the old-fashioned way. Well, this merchant advertised that one could have every thing in his stock right straight through at ten per cent less if he came and got it himself and *paid cash* down. Now, I think this, if it is true (and I hope it is), is a big object-lesson.

A good deal has been said about buying of the department stores. You know their terms are, "spot cash first: goods delivered afterward." They have no bad debts—no losses from people who do not pay. Years ago good Christian men tried again and again to start a cash store—spot cash from everybody; but it is a hard matter unless you have two stores, as illustrated above. Just one more illustration:

When I was a business man on the street, my next-door neighbor started a spot-cash grocery. He sold cheaper than anybody else. One day one of the richest and most influential men in the town came for some butter just before dinner-time. He then discovered that, in changing his clothing, he had left his money at home. What should my neighbor the grocer do? He would have to make a break in on his invariable rule or he would have to offend one of his best customers. He chose the latter alternative. The butter was placed on the counter, and his good friend the customer traded elsewhere after that. May God help us in our efforts to solve in a Christianlike way this unending stumblingblock of dealing with people who *do* not or *can* not pay.

Suppose, friends, that not only individuals, but great business firms—their rivals in business—should feel toward each other and do business with each other as do the daughter and mother I have mentioned. Would it not be a happy world to live in? And, finally, suppose the great nations of the earth should come to a point where even they could deal with each other and settle differences in that same spirit—"peace on earth, good will toward men."

WHEN GLEANINGS WAS PRINTED BY WINDMILL POWER.

When this journal was first started, it was for a time done by the power of the wind. I think, friends, with your permission, I will go a little further back. In my childhood I was very fond of investigating the forces of nature. Close by my boyhood home in Mogadore, Summit Co., Ohio, was a little stream fed by soft-water springs. As soon as I was big enough to play in the water and build a dam I had a little waterfall, then a waterwheel; and it did not take very much ingenuity to put a crank on the end of the shaft of the waterwheel, and a little later a rude sawmill was rigged up in imitation of the water-power sawmills so much used then, for cutting lumber. A little later I read in the geography about windmills over in Holland for grinding grain and pumping water. I also read somewhere, or somebody told me, they made the sails of cloth; and as we lived on a little hill where there was a good breeze, I soon had a windmill with cloth sails that would actually run my mother's old-fashioned spinning-wheel.

About 1852 my father moved back to Medina Co., where he had a little farm in the woods. I think I shed some tears when I was called on to leave the babbling brook that ran my sawmill, and the ducks and chickens I was already interested in. At the same time I had made some progress in electricity. I had a galvanic battery of home manufacture, but it did not work exactly as I wanted it to. When I got to be a little older, and got hold of the proper books on electricity, I ran my sawmill by electric power in place of the babbling brook; and this last sawmill was portable. I have told you how I took it around to schoolhouses and gave "lectures." About the same time, I constructed a windmill with cloth sails as before; but I put it on top of a pole and made it pump water from our well, and churned the butter for my good mother. With seven children to look after she was very glad to be relieved of any part of her household duties. At the time I made my first windmill there was scarcely a windmill to be seen in the whole State of Ohio. I think there were a few in the far West on the big cattle-ranches for pumping water for the stock. My home-made windmill worked all right and attracted much attention far and wide because of its novelty until a heavy wind blew it down. I do not know but I shed some tears again, even if I was a pretty good-sized boy. But my attention was turned to something else until I got hold of bee culture, as I have been telling you of recently. During all the years, however, between my experiments with wind, and up to the time I had a printing-press for printing GLEANINGS, I was interested in windmills. I looked at the pictures in the agricultural papers with which I have always been in touch more or less, and sent for price lists and circulars. I have always had a great fondness for automatic machines, or things that would go of themselves. My grandfather on my mother's side worked for years on the problem of perpetual motion; and I used to stand for hours by his side and listen to his theories about making a machine that would go itself when once started.

The first two or three issues of GLEANINGS were printed at our Medina printing-office—a rather small affair at that time; but it did not suit me. I ached to get hold of the type and the paper, and make it just as I wanted it. I scraped up money enough to buy a second-hand foot-power press, and hired a printer to give me instructions. We got on nicely until the subscriptions began to come up, as I have explained; and when I was admonished that I needed some kind of power, my mind reverted to windmills. Little gasoline-engines were unknown before the year 1875. I got hold of an advertisement of a windmill made, I think, somewhere in New York. I believe it was called the Halliday. The building I owned was a three-story brick; and with the windmill on top of the building I thought I could get a pretty good wind. Sometimes it was a little *too* good, as you will notice later. Well, when we got it all rigged up it worked tiptop except that the press had a very irregular speed. Sometimes it was very slow work feeding the sheets of paper; but before we knew it we would just have to hustle to get the sheets fed in properly. Then if the wind stopped blowing for an interval the pressman had to stand still and wait. To obviate this trouble I had a device so I could run it by foot power when the wind did not blow, and a sort of ratchet-wheel so when the wind came up it would take the machine out of your hand, or perhaps, better, out of your *foot* which might be getting tired. Well, I greatly enjoyed this until our subscription got up to such a point that the press *had* to be run, wind or no wind, to get the journal off on time, and I was *always* a great friend of punctuality. And this reminds me that just a few days ago I happened to go through the pressroom where the girls were folding up journals over a week after the date they should have been mailed. For a little while there was a stir in camp in the way of investigation. But the men in the different departments notified me that several obstacles stood in the way of my hobby for having the journal out "on time." We can not run nights the way we used to do, because there is a law in Ohio making it unlawful for women in this State to work over nine hours a day; and they could not put in green hands, because it is something of a trade to wrap up journals as we do now, without rolling them up.

Well, after I sat up nights to get the journal off on time when the wind did not happen to blow, a steam-engine seemed to be the only thing that would let us out.* Besides the printing-press we were beginning to have orders for hives and frames; and a Bookwalter engine was installed in the basement. That moved the printing-press at a regular rate of speed, and I could well appreciate the difference between steam power and wind power for running machinery. I need not take space here to tell you that pretty soon a larger engine was needed, then a bigger building down by the railway, half a mile away, where we are now located, and so on and so on. I felt sad to part with the windmill that had given me so much pleasure and satisfaction in climbing all over it to keep it well oiled, etc. What was the use of having a windmill when the steam-engine could do the work ever so much better? One of my good friends at that time, a farmer as well as a beekeeper, offered me twenty colonies of bees for the windmill that originally cost me between two and three hundred dollars. He moved it over to his farm, put it on top of his barn, and used it for running his cutting-box, grinding grain, pumping water, etc. My good friend Ed Blakeslee is dead and gone; but the old windmill stands above the barn, even yet, I suppose because it is less work to let it remain than to take it down. On our front cover we have a picture of it. I urged the boys not to give the picture, because it is such a sad reminder of the days gone by. Its dilapidated appearance makes me think of some old man who has outlived his usefulness.

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* Perhaps I should here remark that, besides pumping water, there is one other place where a windmill does very well—grinding grain. After I got the machine in operation I was so anxious to have it doing something nights and Sundays that I put up a little building near by for grinding grain; and with a machine made specially for the purpose I actually succeeded in having it do quite a little useful work during windy days. It made very fair cracked wheat and corn meal and various kinds of ground feed for horses and cattle. As there was no gristmill in Medina at that early date, the farmers soon began to bring in their grain. But right here is where trouble came. Of course every customer wanted to know when he should come after his "grist;" and I set the day far enough ahead so, as I thought, to be sure; but when my little mill got piled full of grain, and the "wind didn't blow," the farmers became disgusted and hauled their grain somewhere else. The arrangement does very well for a farmer to do his own grinding, but he can not do much custom work. Since gasoline has become so safe, cheap, and reliable as a means of power, windmills for such work are practically ruled out.

The second picture, given on page 854, shows the beautiful Blakeslee home to better advantage. On the left you catch a glimpse of a row of basswood-trees. I think the row is about half a mile long. While I was planning my basswood orchard, neighbor Blakeslee, an enthusiastic beekeeper at the time, caught the fever and planted some basswoods. His daughter, Miss Blakeslee, now superintends the farm, but she does not happen to be a beekeeper. She is interested in growing currants and raspberries. You can get a good glimpse of her berry-patch with a white horse following the cultivator between the rows. A new windmill on a modern steel tower rises above their dwelling. In the basement of the barn where the old windmill stands she keeps about 500 White Leghorn hens. They are kept there winter and summer without any yard at all; and with her management their eggs pay for their feed, and have for three or four years, leaving a good big margin for their care and attention.

Windmills are all right for pumping water; but since the advent of gasoline-engines (especially if the supply of gasoline continues to hold out), there is not much use of talking about wind power to drive machinery. With the use of a storage battery it is possible to get a steady speed from the irregular and fitful blasts of winter and summer wind; but so far as I can learn there are only a few plants that are successfully carried on in this way. With the modern up-to-date windmills that are not only self-governing but self-oiling, the best machines are almost automatic for pumping, and with a very little care and looking-after they will last many years.

"BEWARE OF PICKPOCKETS!" NO. 2.

This time I am going to say something about the old-fashioned way of picking pockets. Come to think about it, I do not know but it is some improvement on the old-fashioned way—that is, an improvement made by the pickers of pockets.

Last winter, among a great lot of beekeepers who called at our Florida home was a great big chap who, I fear, did not enjoy his Florida trip very much, owing to the fact that his pockets were picked of something over $200 just as he arrived at Jacksonville. I might have taken his name and address, but perhaps he would object to so much publicity. Why I speak of it now is to sound a warning. He said that, just as they arrived at Jacksonville on a crowded train, somebody came along and cried out, "Beware of pickpockets!" Now, this man had been in the habit of carrying his money in an inside pocket; but for some reason that morning he had it in an ordinary pocket. Not long after the warning, "Beware of pickpockets!" the train stopped in the Jacksonville depot. Two men came rushing up the aisle in the car in a big hurry, just as passengers were getting off. One of them called out in a loud voice to his companion a few seats ahead, something like this:

"Bill, we have got the wrong car. Let us get back as quick as we can, or we may *get left*."

At this his companion turned about and suddenly jostled several individuals in his haste, and together these two managed to make quite a jam and mixup. Now, my friend thinks the whole thing was a put-up job. The man who called out the warning, "Beware of pickpockets," expected that every one who carried money would quickly place his hand on the spot where his roll of bills was placed (to *be sure* it was there), thus giving the thieves the information that he not only had some money, but just where he kept it; and the same man who called out the warning was one of the gang. As soon as my friend discovered that his money was missing he hunted up the police at the depot, and told them that he could identify the men who made the jam. The policeman, however, quickly told him that that "gag" was worked almost every day; and that as he could not identify the two men who really got the money, they could do nothing.

While the above is literally true, it tends to give Jacksonville a rather bad name; and, in fact, what else *could* you expect in a city that has pretty nearly a mile of saloons on one straight thoroughfare?

There are several morals right here.

1. Do not think of carrying a hundred dollars, nor even fifty, in your pocket. Carry just what you are going to need from day to day, and have the rest deposited in some safe place.

2. Do not keep any money of any account in a pocket easy of access. I carry what little money I need in an inside vest pocket, and keep my coat buttoned closely over it. Of course, an expert in the trade might get it even then, but I think not without my knowing it.

3. *Keep out of the jam.* These fellows purposely plan jams. If anybody seems inclined to run against you, look out.

My sister, Mrs. Gray, one of the W. C. T. U. women, and one who can not afford to lose her money, was once getting on a train in quite a crowd. A rude fellow bumped against her. Before she could make any remonstrance, however, he was gone, and a little later she found her *money* was gone too; and then she understood why the pickpocket bumped against her in such an ungentlemanly way.

Before closing, just a word about pickpockets who get your money by skillful fraudulent advertising. See the letter below:

I see in your Health Notes of Sept. 15, 1914, that you have been "taken in" as I have been by that woman. I am hard of hearing too, and I bit on glycerine and enserol that cost $1.05 at Steubenville, Ohio. Now we are going to snow Coxey under, and ballot the saloon out of this State.

Brilliant, Ohio, Oct. 8. S. MILLYSACK.

The little book referred to above, containing the simple story of a poor woman who had "noises" in her ears, should be shut out of the mails; and the men who sent it out, if they can be found, should be promptly punished. And I think, too, that something might be done to stop druggists from keeping and selling much of the advertised medicines after they have *proof* that these are frauds.

DEATH OF T. GREINER, OF LA SALLE, N. Y.

We are just in receipt of a notice of friend Greiner's death, in a brief editorial in the *Practical Farmer,* for which he has been a valued writer for more than twenty years past. Our good friend has been a regular contributor to quite a number of our best journals on agriculture, horticulture, gardening, etc., almost all his life. His articles have not only been exceedingly practical, but every sentence and line indicated that he was in close touch with the soil every day of his life. His brother, Fr. Greiner, has been a frequent contributor to our columns, and I think Tuscio has been also more or less of a beekeeper all his life. Three valuable articles from Tuscio will be found on pages 483, 568, and 656 for the present year. He and I have had frequent friendly letters for year past—in fact, almost ever since GLEANINGS was started. At first we did not agree very well on religious matters; but as friend Greiner was an ardent friend of temperance we soon got on common ground, and our relations in later years past have been of the most friendly nature. You can imagine how surprised and pained I was to receive last summer the following brief notice. I think there had been some correspondence previous to this in regard to this accident.

Mr. Root:—Radiograph taken of my damaged hip this week shows that I am hurt beyond repair, and shall never be able again to walk naturally or resume my garden work. T. GREINER.

La Salle, N. Y., July 25.

On the same day the above was received I wrote him as follows:

Now, in regard to your sad condition. I hope it is only that you are unable to walk, and that you have all your other faculties. If so, you can still praise God. I am sure our inventive geniuses can furnish you something that will enable you to get around so you can at least oversee your garden work, and may be you can do it still better if you have more time to plan and arrange things. I suppose you know what Terry said when he was laid up one summer. He said he sat around under the shade trees and made the most profitable season he ever had, just by planning and bossing better.

If you have any means in your place for storing an electric automobile I would suggest a little one as the best thing in the world to get around with. I use mine for running all over town, all over the farm, from my home to the factory, and everywhere I want to go; and it's really a Godsend to me to keep me from getting too tired in walking. May God help you in your affliction.

Medina, O., July 27. A. I. ROOT.

Almost immediately I received the following:

Mr. A. I. Root:—I thank you from all my heart for the kind letter of July 27, just received, and for your kind and comforting words. I have much to be thankful for, with all my afflictions, for I have all my mental faculties and bodily health, except that break in my one hip bone, and have not missed nor failed to enjoy a meal for many months, perhaps years. I still hope to be of some use and usefulness to some one in this world, and to the world at large, and have an all-abiding faith in the hereafter.

I would thank you for a little more information about that small electric automobile. Who makes them, and what is the approximate cost? I have often wondered why somebody does not make and put on the market a low, small, safe vehicle of this kind calculated for a single passenger.

LaSalle, N. Y., July 29. T. GREINER.

As I did not know just how he stood in regard to spiritual matters you may imagine how rejoiced I was to hear him say, "I have an all-abiding faith in the hereafter." I hunted up a second-hand automobile, something like my own; but I presume his declining health prevented him from getting it. May God grant that we, each and all, may be able to say, before we cross the dark river that we "have an all-abiding faith in the hereafter."

THE DEFEAT OF INJUSTICE.

In reply to my offer on page 781, Oct. 1, 2000 of the leaflets have been called for (one good brother calling for 500). One good friend writes as follows:

> Kindly advise me what the price would be of some printed on heavy white paper in large clear type, and which could be framed if wanted.
>
> Mrs. Frank Rasmusen.
>
> Greenville, Mich., Oct. 6.

There is no trouble about furnishing these on cardboard large enough to be put in a frame and hung up in the home, providing a sufficient number would care for them in that way. Again, it would be a little more expensive to mail them if put on cardboard without being rolled up or doubled up. If printed, say, on ordinary Gleanings paper, the cost would be but little. If put in a frame with glass over it this might answer about as well. If a sufficient number care for it in this way we will have them printed.

Let me say, by the way, that this editorial, taken from the *Sunday School Times*, has been already printed in Gleanings three times. At first I was a good deal disappointed to find so few who gave it any particular attention; but it seems to me that from first to last, in view of the many "touchy" people in this world (myself among the number), there is a great and increasing need for something of the kind to be kept constantly before us. We can not get over the idea that we who are followers of the meek and lowly Master do not need to worry, even if somebody does give us an underhanded clip. Some good man or good woman said years ago (I am not sure but it came from the *Sunday School Times*), "No insult can be given where none will be taken."

A MOTHER'S LETTER.

> *Mr. A. I. Root:*—This is not a business letter. I felt that I should like to write and say to you that your magazine is very beneficial, and it is a pleasure to learn that you are a Christian man. I have a son just 21 years of age who is trying to learn the bee business. He subscribed for your magazine, and the reading is very good for him.
>
> He has been a Christian boy, but he is trying to get into business for himself, and I have been afraid he would *forget* his religion. He owns 30 hives, and is working to get money enough to buy 100. We are not in a financial condition to start him into a business himself. He must work for wages, and the world's influences are great to drag a young man down; so I was much pleased to read your editorial in Our Homes. I know it will influence him, as he reads your papers clear through.
>
> Mrs. Minnie Greeley.
>
> Hanford, Cal., Oct. 14.

Thank you for your kind words, my good friend. In regard to the young man getting money enough to buy a hundred colonies, please tell him for his old friend A. I. Root, not to buy any more bees at all. With his thirty colonies in your mild and genial climate he can build up to a hundred just as fast as he acquires the ability to handle them. In fact, I am inclined to think he had *better* have only thirty to start with than a whole hundred. If honey is not coming in his locality the year round, enough to keep brood-rearing going, let him buy some sugar or cheap honey, and feed them judiciously.

UNDER THE INFLUENCE OF DRINK, KILLED HIS BLIND WIFE.

We clip the following from *Collier's Weekly* for Oct. 17:

> THE MAN WHO MADE MONEY OUT OF IT.
>
> Out in Portland, Ore., one day last month, Oscar Harris, blacksmith, cut a woman's throat. The woman was his wife, and, after killing her, he killed himself. The murdered woman was blind. We quote the Portland *Evening Telegram:*
>
> "Harris had been drinking heavily of late, and was supposed to have attacked his helpless wife while in an alcoholic frenzy. That the wife, who had been blind for some time, put up an unequal struggle against the drink-maddened murderer was apparent from the jumbled confusion of the furniture and from the condition of the woman's face."
>
> This fall Oregon votes dry or wet, and women vote in the election. What will Oregon voters say to the Harris case? What do they think of the man who sold Harris his whisky? and what do we all think of the cozy, respectable distiller of the whisky, who lives on one of the best streets in his town and enjoys the comforts of the civilized State?

Amen to the above. Yet, friends, what do you think of the man who made money by selling the whisky that caused the poor crazy man to fight with, and *kill,* his poor innocent hard-working *blind* wife who was *tied up* to a drunken husband? Can any church-member, in the face of the above, think for a moment of voting wet? If you urge that this is an extreme case, let me refer you to the average daily in our great cities. Reports, substantially the same, are coming in a constant stream where people vote wet.

HIGH-PRESSURE GARDENING

GARDEN-MAKING IN FLORIDA; SEED PEAS, ETC.

I am sure the friends here in the North will excuse me if, during the next few months, I devote quite a little space to gardening in Florida and other southern localities. Just now I want to speak of peas. Every gardener knows that peas do not stand hot weather. If you grow them to advantage in Florida it must be done during the cooler part of the winter. On this account they should be planted some time in November. If you wait until later so they begin to ripen for hot weather in February, March, and April, you will often waste your time and seed. Now, during the last seven years I have made so many failures in growing peas that Mrs. Root says it is no use to try any more. I will tell you some of the difficulties. The seeds that you purchase at this season of the year are mostly old, and probably not true to name. Besides, you will not get it promptly. May be you will now; but in years past my orders for seed peas would be acknowledged, but dealers would say they had not yet received their seed peas; and when I did get the seed it was too late. Besides, the price is often excessive. Just now I notice that the Kilgore Seed Co., of Plant City, Fla., makes a specialty of the popular varieties of seed peas, and their prices are only from 25 to 30 cts. a quart. To demonstrate that their seeds are fresh, and true to name, they have sent me samples with a request that I plant them and report. Our gardening friends will take notice that since parcel post was in force there is quite a saving in postage (as well as getting the seeds promptly) by purchasing of some near-by seed firm.

CANTALOUP MELONS, ETC.

I have so greatly enjoyed home-grown cantaloups in place of apples or with my apples for my five-o'clock supper that I have decided to try hard to grow some cantaloup melons in Florida during the winter. Therefore I am interested in the inclosed advertisement which I saw in the *Florida Grower,* especially as there seemed to be a chance of having melons, more or less, for Christmas or a little later.

CASABA MELON.—Plant now for Christmas market. Excellent shipper. Seeds 25 cts.
Box 55, Bradon, Fla.

For 25 cents I received a little over an ounce of melon seeds, which I thought rather expensive; but the directions on the package in order to grow them for Christmas are what I value most. Here they are:

CASABA MELON; DIRECTIONS FOR GROWING IN FLORIDA.

Plant in the fall, just at the end of the rainy season, in hills eight feet apart. Put four to eight seeds to the hill, and thin out to two plants when started. Plant the seeds ¾ of an inch deep, and firm the earth well. Cultivate and fertilize the same as for watermelons or cantaloups. They do best if a shovelful of stable manure is placed in each hill, this covered with about four inches of earth, and the seed planted in this. They will stand about as much frost as cabbage; but if the vines are killed by frost, pull all of the melons, even the half-grown ones, and put them under shelter. They will ripen gradually through the winter. They are ripe when they give easily under pressure.

THE DASHEEN, AND WHAT TO DO JUST BEFORE YOU HAVE REASON TO THINK THERE WILL BE A KILLING FROST.

Mr. Root:—I am taking this opportunity to thank you for the pleasure which I had from the dasheen tubers which you so kindly sent me last spring. They all came up nicely, and had large beautiful leaves, and were about 2 feet high when they were killed by a heavy frost early in September. However, I am going to plant the tubers again next spring.

Gloversville, N. Y., Oct. 12. ALBERT MILLER.

My good friend, I am glad you are pleased with them; but I think you would have been more pleased if you had cut the tops all off the tubers before the damaging frost, and used them for soup. You see every bit of the plant is edible—that is, if you cut them before they get frosted. The tubers under ground are not harmed until there is quite a severe frost; but they should be dug and dried soon after the tops are killed.

MOSQUITO-HAWKS; CLEANING DUCK EGGS, ETC.

I am a man old in years, but in spirit I am young like yourself. By reading GLEANINGS I see that you take pleasure in doing many of the same things I do; but I am not a millionaire, and, like yourself, don't want to be nor do I hope to be. I worship and praise the good Lord from day to day; am a strict Prohibitionist and an ardent advocate of woman's rights, including suffrage. I keep chickens and waterfowl, golden Italian bees, and read GLEANINGS all through, cover to cover, and am glad when the number is extra large. Now you know me.

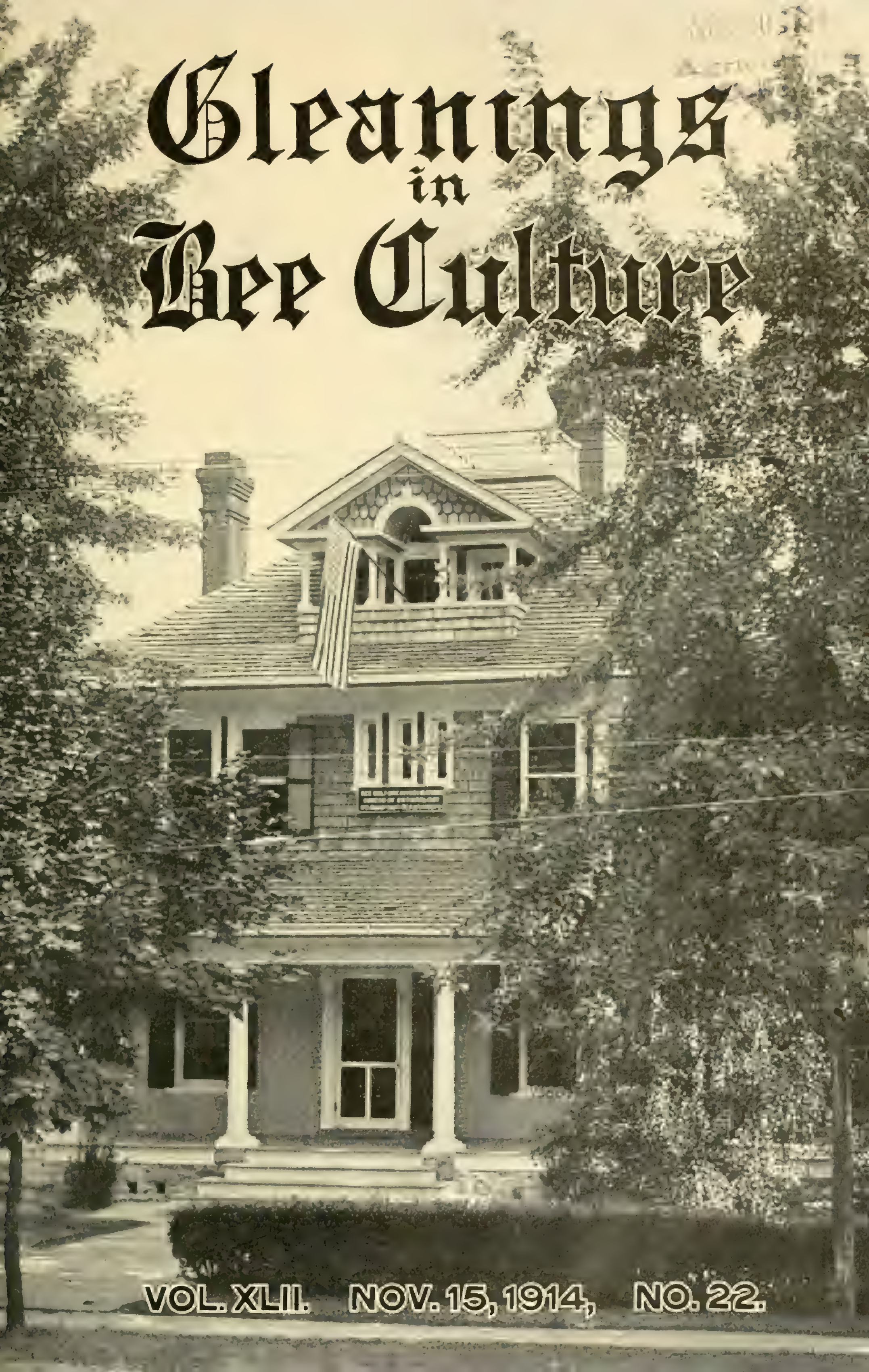
I have discovered that the curved end of your hive-tool is a handy thing for scraping the dirt off eggs before wiping them off with the damp cloth, especially Indian Runner eggs, which are very dirty sometimes. You can try this quite easily.

My next suggestion: In last GLEANINGS it is said that the "devil's darning-needle" or mosquito-hawk causes great damage to your bees in Florida. Last summer they came at my bees; and a yonug doctor, an expert rifle shot, took his 22 Winchester and sat down by the hives and just "popped away" at them. He killed many, and they quit coming. There are probably more in your bee localities; but I think if you take a shot gun with smallest shot called "mustard seed," and shoot it into them many would be killed, and the rest would be scared away. I shall try this way if they bother me this summer.

W. H. SISSON.

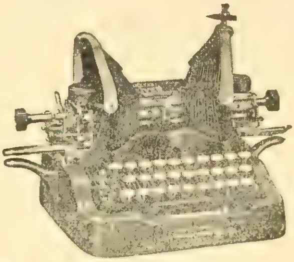
Magnolia Springs, Ala., July 5.

Gleanings in Bee Culture



VOL. XLII. NOV. 15, 1914, NO. 22.

The New
Silent Seven
OLIVER



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Chicago, Illinois

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio

A. I. Root, Editor Home Department
J. T. Calvert, Business Manager
H. H. Root, Managing Editor
E. R. Root, Editor
A. L. Boyden, Advertising Manager.
Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLII. NOVEMBER 15, 1914 NO. 22

EDITORIALS

We have already sent one carload of bees to the Dismal Swamp of Virginia, and another one will follow Nov. 16. The freight will be less than half as much as we paid last year to Florida. The climate is mild, so that the bees can get pollen and nectar almost every day in the year. More anon.

Cover Picture

As announced on page 857 of the last issue, our cover for this number shows the new apiarian laboratory for bee culture investigations under the U. S. Department of Agriculture. This building, located in a suburb of Washington (Drummond, Md.), gives far better facilities for experimental work in bee culture than has ever been possible before. Beekeepers of the country may well be proud of the new building and equipment.

The experimental apiary in the rear of the laboratory is shown on page 856 of the last issue.

A Word to Would-be Inventors; Why a Plain Simple Hive is More of a Moneymaker than Some of the More Complicated Ones

Every now and then a reader of Gleanings discovers "something new under the sun"—something that will revolutionize beekeeping and bring everlasting fame to the inventor. Others are more modest in their hopes of the ultimate success of their new-born ideas. Perhaps we may be pardoned for offering a suggestion. Most would-be inventors are doomed to disappointment. History proves that beyond any question. Inventions in the bee line are no exception; for beyond the great invention of the Langstroth hive and frame, the centrifugal extractor of Hruschka, and comb foundation of Mehring, no revolutionary steps have been taken. Many minor inventions, and some of very great value, have been made, but none of them have yielded their inventors any considerable revenue through the medium of a patent. We do not wish to discourage inventive genius and progress in search of better methods for securing more and better honey. We shall welcome every idea that is presented to us, and those that we consider of sufficient merit we will place before our readers. Many an idea has been offered to us; but because it never appears in print the introducer naturally concludes that we do not consider it has any merit, when the fact is these same ideas have been exploited and described in the past, and it is obviously a waste of time and space to exploit them again.

Inventors are still inventing reversible frames that were thoroughly described and found wanting in the early eighties. They are still inventing new hives, new feeders, new foundation fasteners, new entrance-guards, new drone-traps. Instead of being "new," these things are all old. In most cases these would-be inventors have never read the text-books on bee culture. What a world of trouble and disappointment they would save themselves if they would only take pains to learn what others have done before they delve into fields that have been thoroughly worked over by others!

We have before us a model of a hive, the inventor of which regards it as something of more than ordinary merit. It certainly has some advantages; but the cost of it will more than absorb the profits that such a hive could make for the next ten years; and when we consider the uncertainties of the honey seasons we cannot afford to load down our investment too much at the beginning.

As a general rule a plain simple hive—one that is light and portable, and at the same time capable of expansion by putting on upper stories—is far better than some of the elaborate contraptions that have been brought out from time to time. Father Langstroth devised a simple hive; but as the years have rolled by, even *that* hive has been made less complicated by omitting porticos, cleats, and a big heavy cover. The tendency of modern beekeeping is to make a hive the body of which can be used either as a brood-chamber or as a super when running for extracted honey. Comb-honey supers are just like the bodies, only half-depth. The covers are plain and simple, and likewise the bottom-boards.

In some localities double-walled hives have proven to be very desirable, although the first cost is greater than that of the single-walled hive. But the great mass of beekeepers are using the latter where conditions permit.

J. W. Ferree, of California, in an Accident

We are sorry to learn that the president of the California State Beekeepers' Association, Mr. J. W. Ferree, suffered a serious accident on Saturday, October 24. While riding a new motorcycle he fell from the machine, striking his head on the curbing, which rendered him unconscious. Mr. Ferree does not know what caused the fall—whether he was run into, or whether the machine struck something in the road. Some parties in an automobile picked him up and carried him to a hospital in Los Angeles, where he lay for three days without fully recovering consciousness. When the beekeepers in the vicinity heard of the accident they crowded into the hospital like a swarm of bees, every one anxious to know the result of his injuries. We are happy to state that Pres. Ferree is now on the way to complete recovery.

Fatal Automobile Accident to a Prominent Beeman

The name of W. W. Cary, Sr., is closely associated with that of L. L. Langstroth when the latter was perfecting his hive at the home of the former. A full account of this was given on page 853, 1913. The elder W. W. Cary died in 1884, and his obituary was written by father Langstroth himself in Gleanings for 1886, page 11. A son, W. W. Cary, Jr., then took up the business of keeping bees and of the making of cider vinegar. He in turn handed his mantle down to his son, Herbert F. Cary, and his son-in-law, Earl M. Nichols, of Lyonsville, Mass. These boys have been doing a nice business in selling bees and queens, beekeepers' supplies, and pure cider vinegar. See Gleanings, page 853, for last year.

We are just advised that Mr. Herbert F. Cary, son of the junior W. W. Cary, was killed instantly in an automobile collision on Sunday, Oct. 25. It appears that two machines, one of which was driven by Mr. Cary, collided after dark in such a way as to damage seriously the two machines, overturning one of them and killing Mr. Cary and wounding two of his sons. The accident occurred on a straight road; but apparently the driver of one machine or the other became confused and miscalculated the distance, with the result as stated.

The electric lights in the modern machines are a source of danger. It is almost impossible for two machines in approaching each other in opposite directions to see any thing. A pair of powerful electric lights so obscure the road and every thing else as to make miscalculating the distance an easy thing. This is not the first accident of the kind that has happened. Already legislation in several States requires the dimming of lights in cities and towns. Dimming the lights on country roads when passing another automobile or a horse-drawn vehicle should also be required.

Quadruple Winter Cases vs. Double-walled Hives

This year, for the first time, we are testing out large winter cases capable of holding four hives, the same as are used in Canada, alongside of ordinary double-walled hives holding a single colony. Already we find that the cost of the former per colony is greater than the cost of the latter. In other words, it is more expensive to house a colony of bees outdoors in a quadruple winter case than in a double-walled hive of ordinary pattern. The large winter case holding four colonies must be made of heavier stuff, not less than ⅝ inch thick, while the ordinary double-walled hive can be made of material of about half that thickness. The figures show that the big winter case contains as much lumber as four double-walled hives built on modern lines.

The labor of packing four colonies in the bigger cases is much greater than preparing the same number in the regular double-walled winter hives, and then there is the labor of unpacking, disassembling the big cases, and storing away the loose packing material in the spring. So much for this side of the proposition.

On the other hand, it is probable that the scheme of wintering four hives in one large winter case will give better results than the same number in double-walled packed hives. The heat of the four clusters in the big cases is practically combined in one. By pushing the four hives together in contact the clusters can converge, and at the same time we have a packing space with more packing material; and even if we do not have the combined heat of four clusters we would still have a better-protected colony.

If the bees winter better in these large cases they will come out in the spring stronger, and, of course, will be in better condition to take care of the honey-flow that may come later. A weak colony in the spring is usually a poor asset, as it can hardly do any thing more than hold its own during the entire season; while a big rousing colony with a good queen, other conditions being equal, is a money-maker.

Now, then, if the big wintering-cases insure bigger and stronger colonies in the spring (and that is not proven yet), the extra cost will be overbalanced in the profits they will make their owner.

Mr. R. F. Holtermann, whose plan of winter case we are following, and which is described on page 666, Sept. 1st, this year, feels that this quadruple winter case, even in his cold climate, is an unqualified success. He puts the bees away in the fall, and pays them no further attention until along in the following spring.

There are some who will say that these large winter cases can be made out of cheap lumber purchased around home at a time of year when the beekeeper's labor does not cost much. Perhaps. But any beekeeper who figures on taking it easy during the winter months should bestir himself in finding something to do. If he has no other business he had better go into the business of selling his own honey in his local market. Many do this, and find that their labor brings a good return in winter as well as summer. Most beekeepers cannot afford to do carpenter work during the winter unless they are trained to the business; and a cheap poorly made winter case of cheap lumber will afford poor protection from storms, and last but a short time.

* * *

"The Temperature of the Honeybee Cluster in Winter."

ELSEWHERE in this issue, page 902, there is a review of Bulletin No. 96, from the United States Department of Agriculture, on the temperature of the bee colony in winter. This bulletin is by Dr. Burton N. Gates, who at the time the experimental work was done was Apicultural Assistant in the Bureau of Entomology at Washington, D. C.

"The Temperature of the Honey-bee Cluster in Winter" is the title of another bulletin, No. 93, by Dr. E. F. Phillips and Geo. S. Demuth, of the Bureau of Entomology, detailing some later experiments with newer apparatus. While the conclusions arrived at as announced in the last-named bulletin do not set aside the orthodox belief and practices of beekeepers generally, they do help to explain some of the phenomena in wintering not hitherto understood.

For a couple of winters back, Dr. Phillips and Mr. Demuth have conducted a series of experiments in wintering bees in a constant-temperature room at the University of Pennsylvania, Philadelphia. Several colonies variously prepared were placed in this room, where the temperature was held by means of coils of pipes containing a brine solution—much the same apparatus that is used in cold-storage plants. On the roof of the building containing this room there were placed several colonies of bees where the conditions of outdoor-wintered colonies could be observed. A series of electric thermometers or "thermo couples," as they are called, were placed in these colonies in the room before mentioned, and on the roof outdoors. By an elaborate system of wiring, these electric thermometers were connected to an observation room in the building, entirely separate and distinct from the constant-temperature room. Here Dr. Phillips, with his assistant, could follow with the greatest exactness the temperatures of every part of the hive and clusters of the several colonies inside and outdoors. By these temperature readings it was possible to determine the exact state and size of the cluster, when it moved, and the various reactions that take place as the result of feeding, disturbance, and the raising and lowering of the temperatures outside the hives. The idea of using electric thermometers was to avoid the disturbance incident to the use of mercurial thermometers that require the entering of the bee-room and the opening of the hive to get the readings. Moreover, it would be practically impossible for an observer to stay in a bee-room with a temperature of 42 F. day and night, taking readings every fifteen minutes; and even if he could do so, the constant disturbance would naturally cause a rise of temperature that would be above the actual normal of a colony not so molested.

We had the privilege of seeing this intricate apparatus on a recent trip to Philadelphia; and nothing in all the history of bee-investigation work has been so elaborate and so nearly perfect as this. It entailed a large expense and an enormous amount of work to take the readings—a work that no one individual could afford to undertake. Right here is where the Government and the State can do things that would be impossible for an ordinary person.

It is a little difficult to review or give a condensed summary of a work of this kind; and we would, therefore, suggest that the reader who desires to get more direct information send to the Superintendent of Documents, Government Printing-office, Washington, D. C., for Bulletin 93 of the Department of Agriculture, by Phillips and Demuth, inclosing five cents. Stamps will not be accepted.

For the present information of our readers we will endeavor to give a summary of the observations and conclusions set forth in this bulletin.

Let us first consider the outside-wintered colony which had 19 electric thermometers, with connections to the observation room below. Bees were placed on the roof early in November. From then on until along in March the inside and outside temperatures were taken. It was learned that the temperature within the cluster is far from being uniform, as is generally supposed by beekeepers. "At the temperature at which other insects become less active (begin hibernation) the honeybee becomes more active, and generates heat—in some cases until the temperature within the cluster is as high as that of the brood-nest in summer." During the fore part of the readings in November and December the internal temperature of the cluster of this outside colony had a tendency to drop as the outside temperature went down until it reached 57 F. At that point the reaction took place; that is, the generation of heat began, and from this point it began to rise in spite of the fact that the outside temperature continued to drop. The cluster heat continued to rise until the center of it registered nearly 90 degrees. After the coldest outside temperature was reached, the outer air began to get warmer, and simultaneously the temperature of the cluster began to sag.

We might remark, in passing, that Dr. Gates tried these experiments at an earlier period, as reported in Bulletin No. 96 elsewhere, and discovered a similar inverse ratio; but he did not find the exact point when the colony temperature ceased to drop with that of the outside. Dr. Phillips and Mr. Demuth learned that this point is 57 F. When the colony is without brood, and the bees are not flying, the bees generate practically no heat until the coolest point among the bees reaches a temperature of 57 F. "At this point the bees begin to form a compact cluster; and if the temperature of the air surrounding them continues to drop, they begin to generate heat." Between 57 and 69 F. the bees do not do much in the way of heat generation. Apparently, then, it will be desirable to have the surrounding temperature at such a point that the internal temperature of the cluster will not go below 57 nor above 69; but, as we shall afterward show, the question of food and syrup are additional factors to be considered.

But there are some other data given in this bulletin that go to show that bees have the power of raising the temperature of the cluster; but apparently conditions must be right to do this. We will come back to this point a little further on.

We will now turn our attention to the colonies, or one of them at least, in the constant-temperature room, where the mercury was kept at about 42 or 43 degrees F. "This temperature was chosen as being nearly the one generally considered best by beekeepers." There were two colonies—one fed on honey stores and another on an inferior grade of honey-dew honey, that are particularly mentioned in the bulletin. Colony No. 1, fed on honey stores, was in a constant-temperature room for 163 days, during which readings were taken hourly. At first the internal temperature of the cluster according to the chart hovered around 64 and 68. It rose gradually clear through the winter. The colony fed on honey-dew stores showed a higher temperature at the beginning; when up to about 76 F. it began to take a sharp rise, going up to 91 above, and on Nov. 23d the temperature began to show a sharp drop, the line running down as low as 48 on Dec. 10, when the colony died. Clearly the poor food caused uneasiness by reason of the accumulation of fecal matter that the bees could not digest, and this uneasiness caused activity, and activity called for a greater consumption of stores. The one condition operated against the other, finally ending in the destruction of the colony. The other hive fed on good honey pursued its normal course through the season.

It is interesting to observe that the normal temperature of the cluster of the colony fed on good stores only gradually increased, and this increase was doubtless due to the slight accumulation of feces. This accumulation was markedly less than that in the case of the colony on honey-dew stores, not because the bees became uneasy, but in proportion as the feces increased, the activity and temperature of the colony increased. This increase was not enough however, to cause the death of the colony, but a slight reduction in the force in the spring. These observations explain the importance of good food—a food that will not clog the intestines. It also explains a common cause of dysentery.

The authors have also discovered that the length of the life of bees either during summer or winter depends on the activity of the bees. The greater the activity, the shorter the term of life.

They also find that when brood-rearing commences or is in progress, the temperature of the cluster will rise to about that which takes place in summer or spring. This was to be expected, of course.

During these experiments a remarkable thing was learned—namely, that there *can* be, and actually is, activity inside of a cluster of bees during winter. When the temperature of a cluster goes down to 57, and the outside temperature surrounding the hive is dropping, the bees by actual muscular exercise can raise the temperature of the cluster. This activity may consist of a few bees tugging at each other, moving their bodies back and forth, or *actually fanning* with their wings. One bee may set up an active fanning inside the cluster during the dead of winter. Bees actually fan to cool themselves in summer and to warm themselves in winter, paradoxical as this may seem; and right here is a joke that is too good to keep. Dr. Phillips and Dr. Miller got their heads together and set a trap for the editor of this journal—a trap that he very promptly fell into, as the department of Stray Straws a few issues back shows. Dr. Phillips put it up to Dr. Miller to say that the bees would fan inside of the cluster during mid-winter; and the editor very promptly, not knowing about these experiments, considered it a joke, much to the merriment of the two doctors. We will forgive the joke, because we now know more than we did a few weeks ago. But it is difficult to comprehend that bees can warm thmselves up by exercise, like their owners; and the idea that their little electric fans, so to speak, can raise the cluster temperature as well as cool it seems at first ridiculously absurd; but we have too much confidence in Dr. Phillips and Mr. Demuth to believe that they would report any thing except what actually occurred.

In this connection it is proper to state that this fact was learned through the use of a hive that had double glass sides. The bees were compelled to form their winter clusters against these sides. It would thus be possible to watch the internal movements that actually take place inside, and what was seen was indeed a revelation.

Various observers have opened up clusters of bees in mid-winter, and found the bees inside in many cases as active as they ever are. Certain thermometric readings were taken, showing the temperature was nearly the same as during the summer. In the light of these observations just taken by the Government it is very easy to explain this, notwithstanding that there are times when the temperature of the cluster is below 60 to 70. We have only to remember that, when the inside temperature of the cluster goes as low as 57, the bees raise the temperature of the cluster even though the outside temperature is becoming colder and colder. The presumption is that, when the cluster is large enough, they keep up these "daily exercises" in order to keep the cluster warm. A prolonged cold spell, especially that down to zero, is nearly always disastrous to good wintering. This cold weather puts the bees in the cluster in a state of activity; and activity means an abnormal consumption of stores, with no means of voiding their feces, and then dysentery follows; hence we commonly find after a prolonged spell of cold weather that has lasted for weeks, combs spotted with dysentery, and no wonder. We hope Dr. Phillips will not stop right here. We hope that he will put those thermal couples into a hive located in a severe climate, and that he will try out the difference between a colony well packed in a double-walled hive or winter case and a colony in a single-walled hive of equal strength and the same class of stores. Such a comparison would be exceedingly interesting and valuable.

At the close of this bulletin the authors make the statement that "bees in winter, either in cellars or outdoors, should be disturbed as little as possible." This is a very natural conclusion; yet it will be remembered by our readers that for two or three winters back we have had good results in making increase in cellars by pursuing just the opposite policy. We fed bees on hard candy, and disturbed them as much as possible. This begets brood-rearing and increase at times when the temperature of the cellar is 55 to 60. While we do not advocate this mode of wintering for novices, and while we do not go so far as to say that such increase is made without some corresponding disadvantage, we know we have made increase in the cellar; but, "all'ee samee," we advise the average person to follow Dr. Phillips' advice. Fussing with bees in the cellar is usually attended with disaster; but that does not argue that the expert may not pursue the practice to advantage.

Dr. C. C. Miller STRAY STRAWS Marengo, Ill.

Charlie A. Brown, p. 863, don't you trust to empty sections over the brood-nest to keep bees from starting to swarm. I've had it fail hundreds of times, and there was no excluder, either. And I wouldn't want to gamble very high on your crosswise business, either.

Wesley Foster, p. 838, favors cleaning and casing sections at outyards, which, I suppose, means as soon as taken from hives. Locality again. That's all right in the dry climate of Colorado, but it's hardly best here. I prefer to leave it in supers for a time, either cleaned or uncleaned, sticked up in piles to be well aired, putting fire in the room if a damp spell comes. [One should bear in mind that Colorado has a climate far different from that of Illinois and other States in the rain-belt. Hives that will stand and hold together in Illinois will check and pull apart in Colorado. In more ways than one, methods of management that apply elsewhere do not apply in Colorado There is more truth than poetry in Dr. Miller's phrase, "Locality again."—Ed.]

Arthur C. Miller, I accept your "treasury notes" as "legal tender," and glad to get 'em. But I'd like a discount on one of them. You say, p. 843, "By putting in each fall young queens carefully raised from good stock we are reasonably sure of having very nearly all the colonies of the same strength the next spring." Granted, and also of much the same quality. But I'd rather have inequality with a higher average than equality with a lower average. You also say that in selecting breeding queens, "you must begin several generations back," which is true again. It's also better to begin two years back with each queen than only one year. You can't do that if you requeen each fall. In choosing between two queens, you can decide better as to their relative value with two years' record than with one. That and other reasons prevent me from annual requeening so long as I am working for improvement. As a parting shot I'll fling "longevity" in your face and leave you to your thoughts.

"Requeening with young vigorous Italian queens, and the shaking treatment, is recommended" for European foul brood by Wesley Foster, p. 838. Wesley, I venture the prediction that in five years from now you'll deprecate such a waste of combs, and will recommend caging the queen for ten days in mild cases, and giving a vigorous young Italian queen in severer cases, in either case making ten days' break in egg-laying. [This may be all right; but is it not a dangerous suggestion to hold out to the general public—especially to the beekeepers who might be inclined to be a little bit slipshod or careless? We have never had European foul brood—but if we did we would have followed Wesley Foster's procedure. On the other hand, if we were in Dr. Miller's place, with his knowledge of the business, we should probably do exactly as he has been doing. If locality in one case modifies a method of treatment the man and his peculiar temperament must be another factor that will have to be carefully considered. Not knowing the man, we would advise, in the case of European foul brood, to go the whole limit.

J. L. Byer says, p. 839, that aster honey "is light in color and nice in flavor, but usually a bit light in body." I think its reputation in general agrees with that given in the A B C book as amber-colored, of heavy body, but of flavor unsuitable for table use—quite a difference, you see. For the first time I have had this fall honey that I *think* is aster. It agrees exactly with the Byer description. Is it latitude or soil or what that makes the difference? [The name *aster* when applied to honey covers a multitude of sins. There are so many species of aster, and so many other flowers that are not asters that are in bloom at the same time, that it is almost impossible to know whether one has a pure aster honey. At our swamp yard this fall we observed that our bees were working on asters; but there was other flora that was very abundant—just enough to modify the flavor. Several times on opening a hive we tasted the new honey as it came in. At times it was very pleasant and of good flavor, while at other times it was "off." It is our opinion that the statement in our A B C book is practically correct; but we must remember that the quality of aster honey varies somewhat according to the season, and somewhat according to the locality. As a general thing we may conclude that, when aster has a good flavor, there has been something else added to it to make it so.

We must not forget that aster honey is often unsealed, and therefore not ripened. Such honey is apt to have a deleterious effect on the bees before spring. A well-ripened aster honey is one thing, and an unripened article is another. The ordinary article that one buys for the table is pretty apt to be a combination of the two. —Ed.]

J. E. Crane SIFTINGS Middlebury, Vt.

Mr. Halter's estimate of the value of sheep on page 719, Sept. 15, is not overdrawn.

* * *

A capital idea that, of encouraging working men to use sugar instead of alcoholic beverages, as told page 702, Sept. 15. Let us all help it along.

* * *

When John H. Lovell, page 721, Sept. 15, discusses the question of the relation of bees to black we know we have gotten down to bedrock. It is settled.

* * *

That cover picture for Sept. 15 is about the best ever. If that is what Norway looks like I no longer wonder that its citizens are attached to their home land.

* * *

Whatever may be said as to the practical value of the hive illustrated on page 716, Sept. 15, and used 2000 years ago, it certainly is quite as ornamental as any thing we have to-day.

* * *

We are having to feed heavily for winter. I wish that we had some Ohio swamps for our bees. In some locations where our bees have had aster and goldenrod, so many have worn themselves out trying to gather the honey that many colonies are greatly weakened in numbers.

* * *

We can readily believe what the editor says, page 702, Sept. 15, in regard to the value of swamps for bee forage. While we have had to feed many colonies in our yard twenty or more pounds of syrup to the hive, in case of one yard near a small swamp we shall not have to feed at all, as nearly all of the hives in that yard have an abundance of winter stores, and many have more than enough.

* * *

"Occasionallly we find a colony that forges ahead and stores much more honey than the others, though having only an equal show with the others," says P. C. Chadwick, page 575, Aug. 1, and he is right. If he will watch closely he will doubtless find that swarms from such a colony will do the same thing. That is our experience, and such a colony is the one we like to rear our young queens from.

* * *

I learned to-day of a farmer within range of one of our yards who has sowed several acres of sweet clover this season. I trust this is the entering wedge. It is now 45 years since Mr. M. M. Baldridge, in the *American Bee Journal,* recommended the sowing of this plant for bee-pasturage, and it looks as though something good were to come out of it. If I could only get enough from this source to fill up hives for winter I should be more than pleased. Since the basswood failed we have had to feed from one to five tons of sugar to winter our bees.

* * *

When Mr. Holtermann tells us, page 666, Sept. 1, that the yard should be not more than 45 or 50 feet square with a fence eight feet high around it, I beg to differ with him if it is a tight fence. It looks to me as though that is almost too much of a good thing. I have known just such a yard hopelessly ruined in spring by such a fence. If the weather should be sunny, with cool north winds, such a yard will be many degrees warmer than outside, and the bees will be liable to be tempted out; and, when outside the yards, to become chilled and drop to the snow to meet a fate like poor Clementine—"lost and gone for ever."

Again, Mr. Holtermann, on page 667, advises adding a teasponful of tartaric acid to each 12 lbs. of sugar made into syrup for feeding. I have no doubt this is a correct formula; but I have fed *with* cream of tartar, or tartaric acid, and many tons of sugar syrup *without* it, and so far have failed to see enough benefit in it to compensate for the cost and trouble.

* * *

We are told on the first page of GLEANINGS for Aug. 1 how Milton Robb nearly lost his life in attempting to get a swarm down out of a tree. This reminds me of a rather uncomfortable experience many years ago. I went up a standing ladder some seven feet high and shook a swarm into a basket. In starting to descend I slipped and fell head first. The basket of bees went with a slam to the ground, while I in some way got my feet caught in the ladder and hung suspended by my legs nearly over the swarm on the ground—a very undignified position for a scientific beekeeper to be in, certainly. By quickly pulling myself up by my hands and releasing my feet I jumped to the ground without any serious results except a few stings. I knew one man many years ago who lost his life trying to get a swarm out of a tall elm-tree.

Moral.—Better keep our queens' wings clipped where there are tall trees about our apiaries.

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

While some are objecting to the net-weight law as applied to comb honey, I believe we should welcome the innovation rather than condemn it. There are very few of us who are not more or less interested in the amount of goods we get in any container, and we are no more anxious to pay a full-weight price for a short-weight package than others; so we should not object to giving our customers a guarantee of the amount they are purchasing.

* * *

Dr. Miller says, page 793, Oct. 15, "But a good queen is not by any means a failing queen when two years old, and as a rule will be superseded in good time without my meddling." Possibly this may be true with Dr. Miller; but it is entirely at variance with my observations in this climate. A queen may show up quite well the third season in some instances; but as a rule we are adding a commercial value to any hive from which we remove a two-year-old queen to replace with a young one. The most successful beekeepers in these parts are those who avoid the necessity of a queen being superseded from natural causes. This is too apt to take place during the honey-flow when we want to keep every thing booming.

* * *

J. E. Crane tells of a squash-blossom containing seven dead bees, "evidently caused by several unseasonable days." In this State we suffer perhaps more than any other part of the country from bees being chilled in the field. California's climate depends largely on its sunshine. When the sun is hidden in the spring, bees become chilled quickly. Intermittent cloudy days are the worst we have, and the mortality rate is often enormous. The sun will come out bright and warm for an hour or so, giving the bees opportunity to rush to the field. They gorge themselves more or less with cold nectar when suddenly a cloud obscures the sun, and many become chilled on the flowers. If the sun appears again in time to warm them up, all is well; but if not, they are lost to the working force of the hive.

* * *

Now, Dr. Miller, page 661, Sept. 1, I have been investigating the quality of honey offered to the consumer in bottles and other small receptacles, and it is my finding that the quality of honey bottled and offered to the trade in this, the land of the whitest of the product, is generally a grade that would go in the amber grade, or light amber at least, while much of our whitest product finds its way across the continent and perhaps the ocean. A great amount of this is blended with darker grades when packed to bring the darker up to a standard that will please the consumer and make a fair profit for the amount of white used and a big profit for the dark. Locally I have no doubt that you are right, as is the case here where the white is purchased from the local beekeeper by the grocer and sold by him to his patrons; yet of all the honey handled by the merchants of this town, the largest part of them secure their supply from the wholesale grocery houses of Los Angeles by preference, for the simple reason they can make a good profit and reduce the expense of filling small packages such as the public most desires. It is high time the beekeepers were beginning to fill this avenue of profitable trade.

* * *

The United States crop report, recently issued, in that part referring to honey, reprinted on page 748, Oct. 1, seems to me hardly gives the true conditions in this State. I am not finding fault with the report in particular so far as the authenticity of figures is concerned, for I believe it is a wonderful addition to the beekeeping industry. But yet I can hardly figure that the difference in last season and this is not more than 100 per cent increase of output for this year. There may be some conditions in parts of the State that I do not know of that affect the report. I dare say it is correctly compiled from figures at hand. The Agricultural Department has sent many blanks to this State to be filled out, that a correct estimate of the crop might be given; and if it is not correct we have ourselves to blame and not the compilers of the report.

Another striking part of the report is the notation of a great decrease in the quantity of comb and chunk honey. It looks as though there were an opening for some comb-honey producers at this time. It costs heavily to equip for comb honey to an extent that one should be equipped, which is greatly against its production Another feature is the fact that comb-honey production is expensive some years, as has been the case this year in this State. Some beekeepers who could have gleaned a respectable harvest of the extracted product have had a heavy loss waiting for sections to be sealed that were never finished. One of our largest comb-honey producers told me recently that he lost not less than twenty tons of honey by running for comb instead of extracted. This man is not discouraged, however, as he is a comb-honey man by preference, and will succeed in the end. I would not advise those who are producing comb honey to quit if they are comb-honey men. There are some, however, who are producing a poor grade of comb honey who might better be extracting; while on the other hand some of our dainty producers could make a tremendous hit by producing comb honey. One should be prepared for both, that he may be able to shift with the season, and salvage a part of a crop. There is always a good demand for a good grade of comb honey in our local markets, while a poor grade is not wanted. It behooves the man who takes up comb-honey production to put out a fancy article or lose in both ways. Those who are not cleanly enough to put up a palatable grade of extracted have no business trying to produce comb honey. On the other hand, some of our neat, over-particular beekeepers who take delight in a nice article, could, without doubt, make comb honey pay and pay big.

* * *

Mr. Doolittle says, page 578, Aug. 1, "But I am satisfied that stimulative feeding does not pay. Do not misunderstand me. I do not say it is of no benefit, but that it does not pay." This may be entirely correct in Mr. Doolittle's locality; but in California outside of alfalfa districts and a few other favored places, there are times when feeding is of great value as a stimulative agent. This is especially true following our long dry seasons, when brood-rearing has been practically at a standstill through the hot summer months and the force of bees has run low. Besides being low in numbers, the bees are too old to depend on to carry the colony through the winter with sufficient force to permit the rapid breeding-up early in the spring, which is an absolute necessity in this locality. Seasons like the one just past require no stimulative feeding, for breeding has not ceased since early spring, and hives are well supplied with young bees for spring breeding. The summer of 1913 was one of the trying ones. One could hardly imagine a season of less activity in our foothill apiaries. A small cluster of old bees was all we had to depend on to get our colonies through the winter and start them in last spring. No honey was coming in, and many colonies were short of stores. To encourage the starting of a large amount of brood meant additional stores to feed the brood, so the question naturally presented itself as to how and when feeding should be done. If feeding to increase stores is the object it should be done inside the hive, and given as rapidly as possible to avoid brood-rearing to an extent that would largely offset the object of feeding. If for the purpose of encouraging brood-rearing I much prefer outdoor feeding, using a ten to fifteen per cent syrup. The great objection to outdoor feeding is that much of it is taken up by bees from neighboring yards if there are such. This may be overcome to a great extent by feeding early in the morning an amount that can be cleaned up by mid-day. In practicing outdoor feeding it is a good plan to draw combs from several hives with adhering bees which are to be shaken on to the feeding-pan to get them started quickly.

Brood-rearing in response to stimulative feeding will not be equal in all colonies. Some will respond readily while others will require several days. My experience has been that the response is much more rapid where the colony has a good supply of stores in the comb, especially when there is some pollen coming in. Bees well supplied with stores are, as a rule, the first to begin breeding to their full capacity, whether through stimulating or natural inclination; and a colony well supplied with stores will breed sufficient to keep up the strength of the colony. A colony poorly supplied will dwindle much more rapidly. Pollen is a great factor in breeding, as I have pointed out in previous articles; and unless there is a supply stored in the combs, or a source open for gathering, it will be very difficult to force breeding to any great extent. The stimulating that I have had in mind is for the fall, to augment the force of bees for early spring breeding. But there is occasionally a spring when stimulative feeding is of great importance. Once in a while our rainfall does not begin until the month of March, after which we must await the growing and blooming of filaree and other of our early dependencies. By the time these are a source of aid, the season is too far advanced to allow the bees to build to a surplus-gathering strength in time to catch the usual short flow that follows. In a case of this kind it is desirable to stimulate from the time the late rains begin falling until natural sources relieve the situation. There is seldom a time in the foothill region when there is not some pollen available.

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

Roy S. Weaver, of Courtney, Texas, has been one of our faithful assistants in the apiary work this season. He left a good position in Uncle Sam's mail service, with the intention of "making a beekeeper of himself." While he was not a "new beginner" when he came to us, since his father is one of our progressive beekeepers, there were many things with which he was not acquainted. His experience here has made an enthusiastic young beekeeper out of him, and he goes from here to Cuba, where he will join his uncles, the Somerfords.

* * *

The writer has just helped "the boys" extract honey for an afternoon. It had been some time since I had done this, as my other duties have always prevented my doing the work in the honey-house. The men were using the modern crook-neck uncapping-knives; and as the knives were sharp and in fine trim I started out with them. It was not long, however, before that old butcher-knife that I used to write about was put into play again for an uncapping-knife. Then the different kinds were tried alternately for a while; but the butcher-knife won out in the race for superiority *as the most suitable uncapping-knife for our own use, and especially for uncapping the shallow combs that we use.* I go at it as a butcher goes at cutting off a fine thin steak from a quarter on the meat-block, and I use the same downward stroke.

* * *

A GOOD LAW BUT NO MONEY.

Texas has been without funds with which to carry out its foul-brood-inspection work for the last two years. We have a splendid law; but what is the best law worth without money to pay for its enforcement? It is to be hoped that the next legislature will provide sufficient funds for this purpose. Our hope is strengthened by the fact that the beekeepers discussed this matter very thoroughly at the last State meeting in July, and selected a committee to look after such legislative matters as may be necessary in order to get the appropriation. Horace E. Graham, of Gause, was selected as chairman of this committee. To serve with him, T. P. Robinson, Bartlett; F. L. Aten, Round Rock; and W. H. Laws, Beeville, were named. This legislative committee will act in conjunction with Prof. Wilmon Newell, Entomologist of the Agricultural and Mechanical College and State Experiment Stations, College Station, who has this work in charge in this State. In the legislature the beekeepers can depend upon the writer, who will be a member of the House of Representatives, to do all in his power to obtain for the beekeepers of this State such funds as will be needed to carry on the foul-brood-inspection work. I have given the names of all these parties with their addresses, so that any person interested in this matter may address any or all of them properly. Let us hope that foul brood will be checked, at least so that it can not do us any harm if it can not be stamped out altogether.

* * *

ARMY-WORMS IN CLOVER AND IN COTTON.

Mr. Editor, it was gratifying to learn, p. 745, Oct. 1, that army-worms do not do any damage to the clover, although they do such immense damage to other crops. We have here what is known as the cotton-leaf army-caterpillars, which destroy the tender growth, the leaves, and often the younger cotton bolls, of the cotton-plants. When these armies of worms pass over our cotton-fields they leave them stripped of every thing except the tough stalks of the plants and the full-grown bolls. We had the caterpillars in the cotton-fields this fall; and, although the bees were gathering considerable cotton honey until they made their appearance, this soon ceased. We feel that we might otherwise have obtained a much larger yield from this source.

* * *

SUPER DRIPPING-PANS.

Until recently we have had more or less trouble with the floor of the honey-house becoming soiled with honey that leaked from the supers of honey that had been brought from the apiaries and piled up to be packed up later. It is well known to those who have had the experience that it is quite disagreeable to work on a sticky floor. To keep this leakage from reaching the floor we have adopted galvanized-iron drip-pans, about two inches deep, and large enough to allow two supers to be set in them side by side as the foundation of two stacks of honey-supers. The first two supers are set on two strips about 1½ inches thick so as to have them raised up and out of the honey that may accumulate in the drip-pans. Since using them we have had a nice clean floor; and Mr. Heywood, our senior assistant in the work, declares these the best "invention" that the writer has yet made.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

SNOW-WHITE SECTIONS.

"Will you give your views regarding what are termed snow-white sections? The prices generally quoted per 1000 for such sections are considerably above those not quite so white."

For several years I searched the forests over for the youngest, thriftiest basswood-trees which were of sufficient size for sawing, so as to be sure to get wood of the kind that would give these "snow-white" sections our questioner speaks of. These trees were sawed into two-inch planks at the saw-mill; and as soon as the planks left the saw they were piled up with strips between them so that they might begin to dry before even the outside turned the least bit. If I could get the logs sawed into planks while the timber was still frozen, and get said planks "stuckup" while the frost was still in, a perfect whiteness was obtained.

All went "my way" until one year a buyer called to look at my crop. He offered me within one cent a pound as much as I asked. I refused this offer, and, calling his attention to the snow-white sections, told him what care I had taken, and said that honey in such sections should command more than that in those that were cut from wood not thus selected. He replied that purchasers of honey never looked at nor cared a "rap" about the color of the wood enclosing the comb of honey, but that it was the *honey* they were interested in. He added that snow-white sections were in demand only by beekeepers. Neither the merchants nor the consumers call for them. Since then I have kept an eye out, and I have found that there is much truth in the statement. Of course, if the beekeepers demand snow-white sections, then the supply manufacturer must meet the demand; and past experience tells me that the extra price put on such material no more than covers the extra labor and worry necessary to give what the beekeepers demand. To be sure, the sections ought not to look rough, dirty, nor mildewed; neither should they be left dauby with propolis; but in all ordinary cases I doubt the advisability of paying extra for snow whiteness.

IS WATER FOR THE BEES OR FOR THE BROOD?

"Why do bees visit wet places during the summer months? Is it because they are thirsty during hot weather? I am told that in hot weather bees cannot live if they do not have all the water they need."

What you have been told I can consider only a fallacy. Some time the latter part of the last century I sent five cages, each containing twenty bees and a queen, together with candy made of honey and powdered sugar, to western Australia. These bees had to travel through the tropics, after leaving San Francisco, to say nothing about the mercury being up in the nineties during the five days it took to go from here to California. A distance of over 17,000 miles was covered during this journey, and the length of time consumed was 41½ days, or within half a day of being as long as the average life of working bees during the hot summer season; yet, to my surprise and satisfaction, three out of the five queens reached their destination alive, together with a majority of their twenty attendants.

It is said that drones are never seen drinking water; this corresponds with my experience, for during my forty odd years of beekeeping life I never saw a drone sipping any thing but honey. If I am not greatly in error, the food of larval bees is composed of honey, pollen, and water, these taken by the nurse bees, and formed by a process of their own into chyle; consequently we find bees at watering-places only at times when there is young brood in the hives. If adult bees needed water to quench their thirst whenever we have summer heat, they would be seen about watering-places during any heated term in October or November; but so far, in this locality, I have never seen bees taking water during these hot spells after brood-rearing had ceased.

Ten or twelve years ago we had a hot spell of three days' duration the middle of January, so hot that the people in the cities quit their homes and got out in the parks and other places to keep cool, the mercury reaching 87 degrees in the shade out here in the country. I had several colonies wintering out by way of experiment, and the bees went outside of the hives as they do in summer, yet not a bee did I see hovering about the watering-places they use from April to September when there is brood in the hives. That it is not the heat that takes them to these watering-places is proven, for in April and May—yes, in June as well—*during cool weather,* when the rain or clouds have kept them from getting water, they will rush out on the first break in the clouds to get their loads of water, and scurry back to the hive before the sun is shut under again by another passing cloud.

GENERAL CORRESPONDENCE

DR. MILLER'S SHORT CUT IN TREATING EUROPEAN FOUL BROOD

BY DR. C. C. MILLER

An Illinois beekeeper who says he has read all my writings in GLEANINGS writes me as follows:

> I have about 40 colonies of bees, and this summer, for the first time, I noticed foul brood among my bees. I may have had some last summer, but did not notice it. I treated eleven colonies—all but one successful.
>
> I still have about four colonies affected. Is there any way of saving any of the combs so they can be used again?
>
> Must combs that have been used in supers be destroyed, or can they be used in supers or brood-chambers again?
>
> What I want to know is how to cure foul brood economically and quickly. Are there any short cuts?

The shortest answer to this letter would be to say that I have written pages in GLEANINGS about my experience with foul brood, answering fully the questions asked, and it will take a good deal less time for him to look up what I have written than for me to write it all over again. Or I might reply that my experience is given in "Fifty Years among the Bees," and I would rather make him a present of that book than to write a private letter of reply.

The fact probably is that he is entirely honest in saying he has read all I have written, yet it has not occurred to him that, like thousands of others, he has skipped every thing printed about foul brood until the disease struck him. It would be space well used if a whole page of large type should be occupied telling beekeepers that they should read up in advance on the subject of foul brood, provided it were certain it would be read and heeded by all those who as yet have not been visited by the pest.

Instead of that the average beekeeper waits until he finds something to make him suspect there may be disease among his bees, and then all at once he writes to some one who, he thinks, has had experience, and expects by return mail all the help he needs. I've had many a letter of the kind. Please, please, friends, be reasonable. If I should reply by mail to such letters it would take all my available time. I am glad to answer to the best of my ability letters desiring answers in the bee-journals. Such replies are read by hundreds instead of being read by a single individual, and whatever of value there may be in them will be multiplied many times; but as to making private replies I must treat all alike, and so decline to reply by mail.

Before answering the specific questions asked by my correspondent, let me say a few words to those who as yet have no disease among their bees, in the hope that they may be read by at least a few of those to whom they are addressed.

If you are wise you will inform yourself in advance as to diseases of bees, and will know something about what to do. Whether you have been thus wise or not, when you find something that you think is disease in brood-combs, send by mail a sample of the suspected comb three or four inches square to Dr. E. F. Phillips, Department of Agriculture, Washington, D. C. Send it securely done up in wood or tin, writing Dr. Phillips about it. Or write him first and he will send you a tin box in which to send the sample, together with a frank to cover postage, and he will also send you printed matter giving you needed instruction, and for all of this there will be no charge.

Now as to the questions asked: I don't know how to reply, for I haven't any inkling whether it is American or European foul brood that is in question, and the two are entirely distinct diseases. The only thing is to answer as to each disease, keeping in mind that my personal experience has been only with European foul brood, knowing nothing about American foul brood except what I have learned from others.

If the disease is American foul brood then I doubt if there is any short cut "around the McEvoy treatment" unless it is to get along with one less shaking than was originally used. But if the disease is European foul brood, then I may say that there is a very short cut. It has been given again and again in GLEANINGS; but as there are always those who, having skipped it in the past, may now feel the need of it, it may be well to repeat it. The late E. W. Alexander discovered a plan away ahead of the McEvoy plan, and I made a short circuit on the Alexander plan. The saving to beekeepers by this plan has likely been worth thousands; and I may here remark, more in sorrow than anger, and more in amusement than either, that for my part in the plan I have no vivid recollection of any word of commendation; but I do recall that I have been severely denounced for it, not only by those I never saw, but also by some of my best friends. The amusement comes in thinking of the crawfishing there may be some of these days.

Well, here's the latest short cut: If the colony to be treated for *European* foul brood is not strong, *be sure to make it so* by adding brood or bees, or both. If the case is severe, remove the queen, and at the same time give a virgin less than 24 hours old or a protected queen-cell of best Italian stock; or give a young Italian laying queen eight or ten days after dequeening. The bees will do the rest. If the case is mild and a proper queen present, merely cage the queen in the hive and release her in a week or ten days. That's all there is to it.

"Is there any way of saving any of the combs so they can be used again?"

No, if it's American; yes, if it's European.

Another correspondent asks, "What do you do to save the combs?" Nothing. Just use them the same as if there had been no disease. Vigorous bees with a vigorous queen will clean them out. Spores may be left, and here and there the disease may break out again; but in the long run the loss will be less than if the combs were destroyed, and possibly the returns of the disease will be no more frequent than if all combs are destroyed. In my own apiary I think there were no more fresh outbreaks where the old combs were left than where the bees were thrown upon foundation.

If the old brood-combs can be safely used, of course combs in supers are all right.

Marengo, Ill.

A WINTER CASE FOR FOUR COLONIES HAVING A PERMANENT BOTTOM-BOARD USED THE YEAR ROUND

BY A. C. AMES

The greatest fault I have to find with the tenement winter cases used by others is in the confusion which results in moving the bees into them in the fall and out in the spring. In building my case I have eliminated this trouble. The bottom serves the double purpose of being the bottom for the hives, and also the bottom of the case. Then by placing hives on this board four to a bottom, more hives can be placed on a small plot of ground, and still give room to work the hives. More hives can, of course, be crowded together on the regular bottom, but they would not have the same individuality.

I build my bottoms 38 x 46, with a four-inch alighting-board, which makes the bottom 52 inches long. Two 2 x 4, 52 inches long, serve for the bed timbers, and are placed 8 inches in from the edge. In placing the strips for the hives to rest on I keep the center ones one inch apart, and the outside strips are 16 inches from the inside

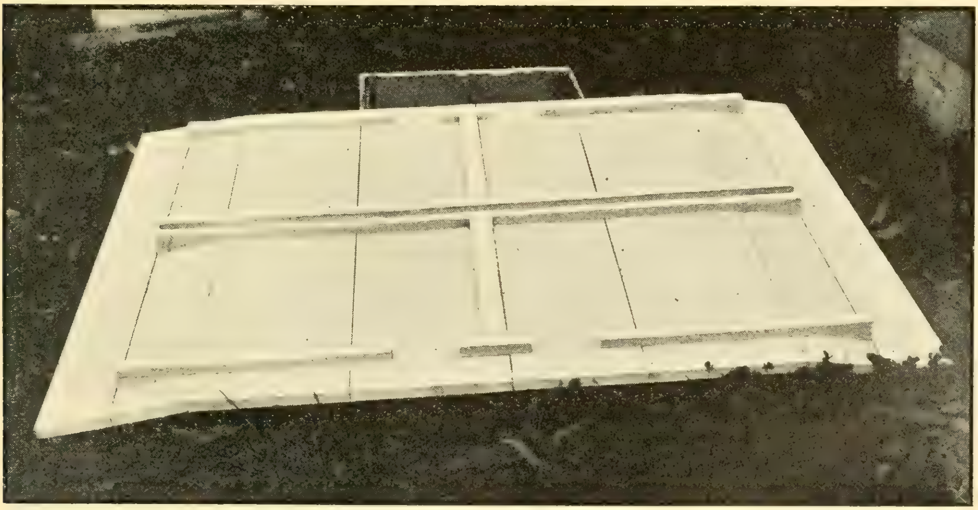

FIG. 1.—A. C. Ames' bottom-board, holding four hives. This is used in connection with his winter-case, but is also the permanent bottom-board for the four colonies throughout the season. The notches are for the Boardman feeder-blocks as shown in the next illustration.

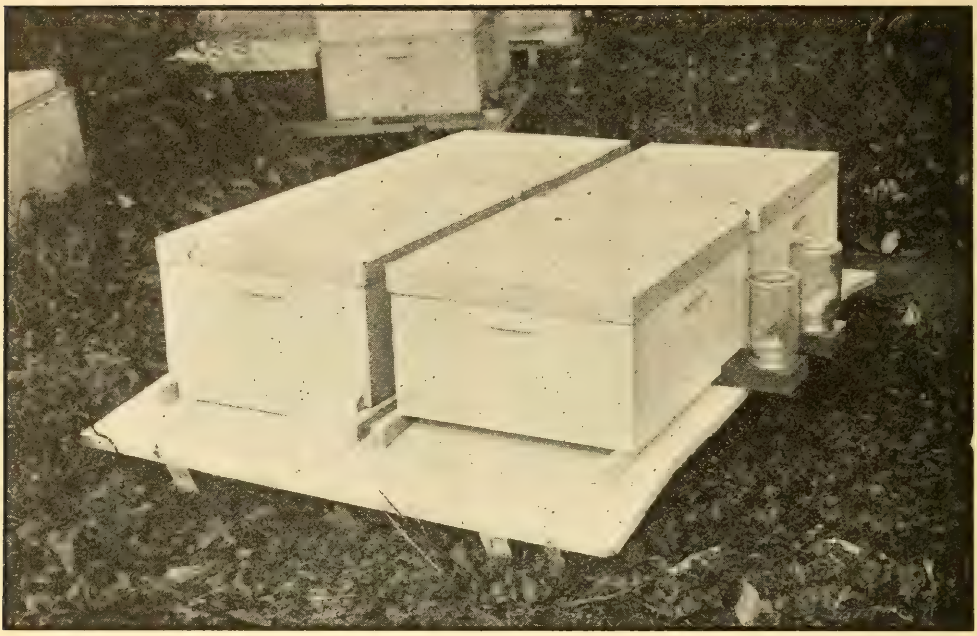

FIG. 2.—Four hives in postion on the bottom. It takes but a short time to set the winter case on and fill in the packing.

ones. In summer I move the hives about 2 inches apart on the sides, and 4 to 6 inches lengthwise, which gives plenty of room to work, and for wintering they are moved together in the center, which gives three inches of packing on the sides.

When first building I used a perfectly flat bottom. I soon found this to be a mistake. It is impossible to set these flat bottoms so that water will not run in at the entrance in the summer. I now taper each end down about 1½ inches and let the taper run back about 8 inches, half of which is used for the alighting-board. This gives a large entrance, which helps to retard swarming.

It will also be noticed how easy it is to use the Boardman feeder, the feeder being placed well back in the side of the hive. This eliminates robbing, and the feeder is out of the way. It can be left on all summer if one wishes.

The cases are built 24 inches high, and rest on the bottom across the ends, telescoping by the bottom on the sides. These can be made either sectional or in one unit. In case the apiary may be moved I would recommend the sectional; but for a permanent location I would rather have the case fastened together solidly. In the summer the cases can be placed one on top of another, making a good place to store the packing material. The case should be built of matched stuff; or, if plain boards, they should be shiplapped to shed water.

I make the top perfectly flat, and just large enough so that it will cover well. It is roofed with a good grade of paper roofing.

Seventy feet of lumber will build the entire case, top and bottom, if one is careful and buys in lengths that will cut to advantage. The first I built were made from hard pine. This stuff shrinks too much, and is heavy to handle. I prefer No. 2 soft white-pine. It is good enough, and is light in weight. Don't forget the paint.

A great many beekeepers winter their colonies in too many frames. It is very seldom that ten frames are wanted or needed. In this case the bees have only a room which is just 40 per cent too large for them, and it must be kept warm. Is this economy? I think not. More often six combs are enough. Remove the outside combs and put in a division-board, and pack that empty space. Then add combs in the spring as they are needed. Your bees will be all the better for it. This applies whether wintered in cases or otherwise.

One would think that bees would not fly readily from these cases on warm winter fly days on account of their being packed so heavily that it would take some time for the outside temperature to have an effect on them. I find that my bees will fly just as

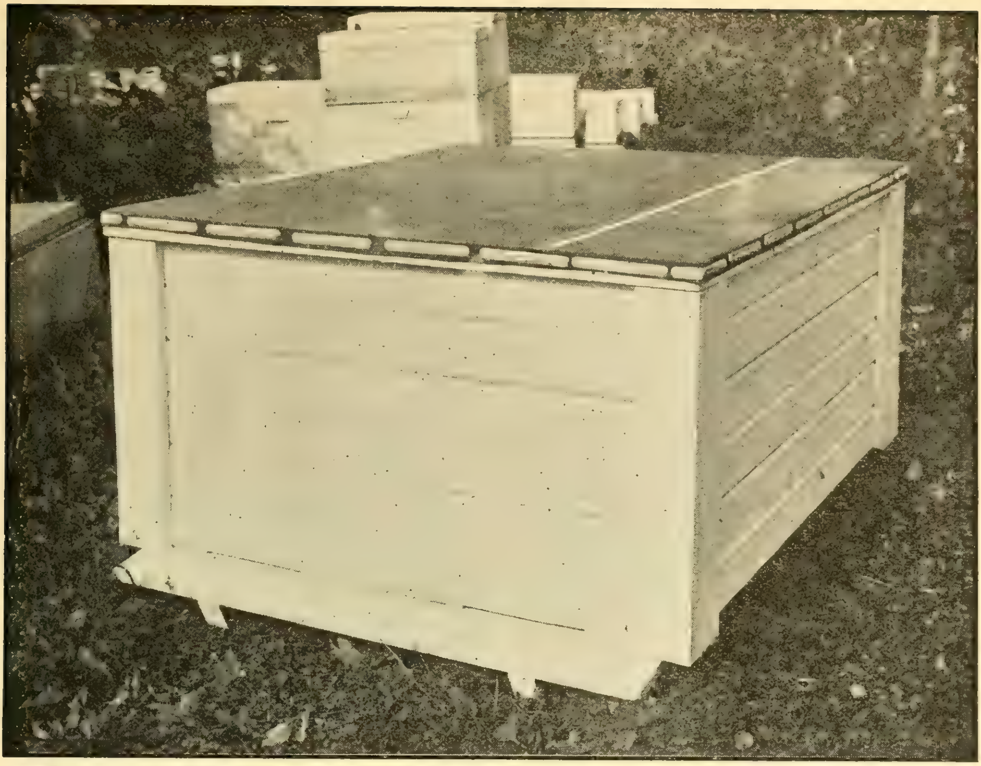

FIG. 3.—The outside case in position over the four hives. Note the metal binding strips used to hold the roofing paper in place.

quickly from the cases as from double-walled hives. However, I would rather they would not fly; for unless they have very poor stores they do not need the flight; and if they don't need it they are better off inside.

One of the most valuable features of these cases is the protection in the spring. I have never seen a particle of chilled brood in these cases. Furthermore, the same amount of bees will protect and take care of much more brood than in single-walled hives. They will go to brood-rearing earlier than where wintered in any other way. But room should not be given faster than it is needed. It is more work to give combs just as they are needed; but we must look to the small things if we are really to succeed.

The packing and case should not be removed until it is certain that the bees can protect all the brood the queens will produce. This is one of the few things it pays to put off. I do not remove mine until well into May, depending on weather conditions.

I do not want a sealed cover, neither do I want a burlap or canvas over the entire top of my hives; so I cut a four-inch-square hole in the center of my super covers, this hole being covered by a piece of closely woven burlap. So arranged I have never had damp packing nor moldy combs.

It is a good plan to fix the bottom so that the wind cannot blow under. In this climate I do not consider it advisable to pack the bottom except to push some straw or other packing under the edges of the bottom to keep the wind out. If I lived further north I would use more packing on the sides and top, and would use a double bottom.

ALL-METAL COVERS.

My hive-covers are made of common black iron. They are just trays used bottom side up. They cost me less than 10 cts. each, and it is about half an hour's work to make one. The corners are bent in and riveted, and the edges turned back. The cover has two coats of paint inside and three outside. I use red lead ground in oil for the first coat, and finish with white lead. Red lead makes a better priming coat on wood than white lead. After it is painted and thoroughly dry I paste a sheet of asbestos in the top. Paste made for this purpose must be used or it will not stick. Ordinary flour paste will not do.

Black iron is better than galvanized if it is properly painted, for the reason that galvanized iron will sometimes scale where it is bent. When these covers are made, the corners must be made square or they will not lie flat.

Peninsula, O.

FURTHER EXPLANATIONS AS TO OUTSIDE WINTERING

BY R. F. HOLTERMANN

Mr. R. F. Holtermann:—Your article in GLEANINGS for Sept. 1, with its fine illustrations, will surely prove valuable to me, and doubtless to many other readers as well, who wish to change from cellar to outdoor wintering, and have single-walled hives. I have waited for the description of your winter cases; and having been away from home I am just now getting them made, and find that I need some further advice and am taking the liberty of writing to bother you with my troubles. It may be possible that, in answering these inquiries in GLEANINGS, you would be helping the readers again.

I am located 33 miles south of Buffalo, N. Y., in a rather high, level stretch of country where the west and northerly winds of Lake Erie strike hard, and from 18 to 20 degrees below zero or even colder is not at all uncommon, and our lot is so situated that I cannot very well put up the fence you recommend; but wind is broken from some hives by thick growth of berry-bushes, and I am using good inch material with tongue and groove closely fitted, and painted, so not much wind should go through the packing-cases.

1. Would from two to four inches more of packing on sides, ends, and tops help offset the lack of the fence as a windbreak, or is there some objection to thicker packing?

2. Do you have or recommend any ventilation over the top of the packing? if so, how much?

3. Do you put sticks or any thing across the tops of your frames to keep cloths up off them so as to allow a passageway over the frames for bees?

4. How large a passageway do you provide from hive proper to entrance-holes in a packing-case?

5. How large in diameter are these three holes in the packing-case, which, from the cut, I take to be outer entrances leading to each hive?

My bottom-boards are reversible. One way up allows a 1-inch space under the frames; the other way, only ⅜; hives have no portico, and are ten-frame. I have planned to make a passageway from hive to case entrance by cutting boards 6 inches wide, 1 inch thick, just long enough to fit into the hive entrance, planing out crosswise of the board a space ⅜ inch deep, 8 long; and it has seemed to me that, to use hive-bottoms with a one-inch space under frames so as to have more room for dead bees would be best by putting the half-inch solid board under the board that has the passageway cut in.

I would raise the passage up half an inch off the bottom of the hive, making it less liable to clog with fallen bees; but this raising up of the entrance can not be done if I have only ⅜ inch under the frames.

6. Would you advise a 1-inch space under frames or only the ⅜?

7. Is this ⅜ x 8-inch passage about right for strong colonies? If not, please suggest best dimensions or arrangements.

8. How much smaller would you make it for, say, a colony that nicely covers five frames, now in warm weather, and has two frames of brood?

9. How closely would you contract this entrance for the weakest colony you attempt to winter? How small colonies can you reasonably expect to winter safely, provided a good portion of their bees were hatched late in September?

I have some good queens in four or five frame nuclei?

10. As zero air rushes into a warm room much faster through an opening than warmer air would in zero weather, when snow is not over these three-hole entrances would it be wise to cork up one or two of them, removing plugs when weather moderated? or if snow is about up to them, how about shoveling it against the case enough to cover over the holes?

11. I take it that you cover frames with cloths, then put loose packing on top of the cloths without any boards over frames. Would four-thickness ordinary grain-sacking be all right? When you remove several frames outside of the hive, do you use a chaff division-board? and if space is left between the division-board and hive side, do you pack that space? and would sacking, carpeting, etc., be all right for that particular place, as I judge that it would be easier to remove in spring?

12. In packing the cases do you crowd in all the leaves you possibly can all about and over the hives? or do you press them down only moderately?

13. About how many frames are left in each of your hives in winter on an average?

Chaffee, N. Y., Sept. 28. A. J. O'DELL.

Berry-bushes make a very poor substitute indeed for a protection against winds and snow for a fence 8 ft. high, particularly when the space fenced in is not greater than 40 to 45 ft. square.

The following are the answers to the questions asked:

1. No. The object of the fence during winter is to prevent snow drifting against the winter cases, to keep the cold wind from blowing into the entrance to the hive, and to enable the sun to have more effect in drying out the inside of the cover of the case upon which there is more or less condensation of moisture which escapes from the bees and passes through the top packing.

2. Yes, a hole ¾ inch in diameter in each end of the case and under the cover. This allows enough air to circulate under the cover to carry off the moisture mentioned in the previous answer.

3. No. I use queen-excluders; but sticks or a Hill device would answer the purpose. The object aimed at is to give the bees a chance to change positions in the cluster when clustering in winter. With comb naturally built by the bees they leave passageways so that the entire cluster can communicate through these passages; but with combs built on foundation they are straight, and each lot of bees between the combs is isolated from the lot on either side. Because warm air rises, the bees can pass over the

A Story without Words.

combs more readily than they can pass under, especially during winter weather.

4. Four to six inches wide by the depth of the entrance, which is 1¼ inches.

5. Seven-eighths of an inch; but I have found with many colonies this entrance is not large enough when the bees are flying freely; and in many cases I have had the wood cut out between two holes. Where the beekeeper is living near the bees it would be well to have an adjustable entrance; but do not change the position of the opening, as it may confuse the bees and lead to their destruction when the weather is unfavorable. You do not get the value of the three holes ⅝ inch in diameter in the front board, as described in my previous article, as you appear to ignore it in your description. The winter entrance to my hive is 1¼ in. deep; the board put in front of the hive has an ordinary entrance cut on the lower side. In addition it has three holes bored in such a way that they come just under the front board of the hive. The object of this is still to have an entrance to the hive should the lower entrance become clogged with dead bees. Again, there should be an entrance to the hive immediately above the bottom-board. The object of this is so the bees can carry out dead bees without taking them over any obstruction.

6. Most decidedly one inch. This enables dead bees to fall away from the combs, and also gives better ventilation.

7. I have no reason to believe that the lower entrance, ⅜ x 8 inch, is not ample for any colony in winter providing the top of the hive is not hermetically sealed, and the top packing is not so compact that no moisture nor air can pass upward. With a front packing under, at the sides and over the entrance, and with no strong current of wind, such an entrance is about right; yet I do not want to be arbitrary in the matter. To any one who wants a wide-open entrance with zero weather let me suggest that he try it in his own home first.

8. I cannot tell. Five frames well covered with young bees should stand an entrance four inches wide.

9. I cannot tell. It would depend upon how badly I wanted the bees. Winters vary. If I had a large number of colonies, and did not want to run any risk, I would not attempt to winter a colony that could not well cover four combs this far north. Such a colony with a good queen and plenty of good stores could give a good account of itself the next season.

10. The cold air, I believe, always rushes into the warm air because the hot air is expanded air, rarefied atmosphere. What you suggest is all right, providing you are there to give needed attention when changes come.

11. Your supposition is correct as to my cover over frames. Forest leaves are much better for packing over the bees; but the sacking with the leaves added is excellent. Newspapers or other paper in sheets over the cloth on top of the frames or queen-excluder is very good. A chaff division-board or a bag with some kind of filling such as wool, carpet, or leaves, is the best way to fill the vacant space in a hive, this space resulting from the contraction of the brood-chamber.

12. No, I do not crowd the leaves used for packing. Let there be some looseness left; press the packing down moderately.

13. There are very few colonies not wintered on the full number of combs—twelve. In the first place, my bees are run on the non-swarming plan, and are much more likely to be full colonies. Next, in out-apiaries I do not always have a place secure from robbers; and, lastly, when bees are packed by Sept. 1 or 15 there is not as great necessity of contracting the brood-chamber, although it is always desirable in order to secure the best results.

You state you are using one-inch material for your packing-cases. One inch split and dressed on one side is better. It should be painted a dark-red barn color. This thin wood is more readily penetrated by the sun's heat, and helps to dry out the packing. Thicker packing on sides does not allow the sun to penetrate; and too much on top is positively injurious, because it retards the upward passage of the moisture the bees give off when expelling the water found in the honey they consume.

Brantford, Canada.

THE CHINCAPIN AS A HONEY-PLANT

While the Honey cannot be Marketed it is of Great Value for Brood-rearing, Stores, and Comb-building

BY J. J. WILDER

Through the great sand-ridge section of central Florida this honey-plant grows in all its glory, not as trees in size, as it grows elsewhere in the United States, but as a small shrub 12 or 16 inches high. Fig. 1 shows the young tender sprout as it shoots up each spring from the crown root just under the surface of the earth, and from which perhaps 50 or more similar shoots will come.

This section of Florida consists mostly of wild land which has been timbered. Small oaks have come up thinly, and the surface is almost covered with this plant. Fig.2 shows a portion of the forest, and the plant in bloom, giving an idea of how dense it is.

Look again at Fig. 1, and note that the blossoms are on stems 4 and 5 inches long, six to ten to the sprout. These stems are solid rods of shucky bloom with the nectar in full view, and prominent. The blossoms begin opening about the body of the sprout, and gradually extend to the end, the entire period of the bloom occupying four or five weeks.

This section of the country is burned over each winter by forest fires, and all sprouts are killed. This burning is usually done the latter part of winter, and soon afterward the new tender sprouts will be seen peeping up. Where it is burned over first it will come up first; and where it is last burned it will come up last. This greatly prolongs the flow, so that it usually lasts for

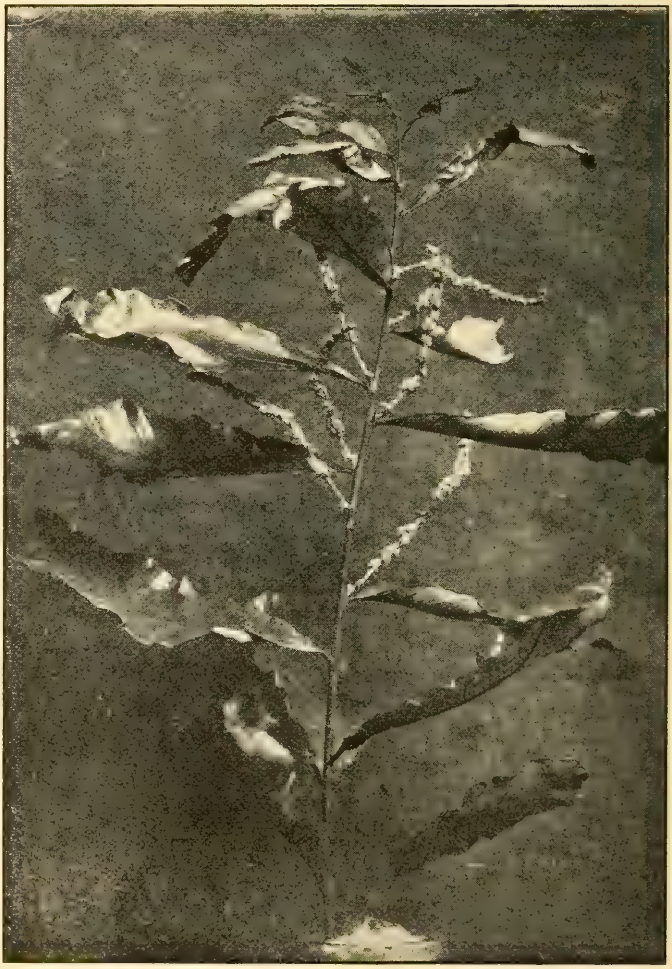

FIG. 1.—A stalk of chincapin, showing the leaves and blossoms.

60 or 70 days, beginning about April 1, ending from June 1 to the 10th.

The yield is usually good, but what about the honey? It is unwholesome in the extreme, or totally unfit for food. It is sweet a little, bitter a little, strong a little—in fact, it seems to have a little of every kind of unpleasant taste. There is not much of any one; but the combination is bad. Then it has also an unpleasant odor—so much so that a lover of good honey would hardly get a "slug" of it to his mouth, much less take any. During the first part of this flow the apiarist handling the bees will very often become very sick from inhaling the odor as he opens the hives, for the fresh, sickening odor floats into the air from the comb where it is being evaporated. A great deal of the offensive smell leaves it as it becomes thicker. When finally ripened it is heavy and dark.

Some reader may wonder why I describe such a honey-plant. Well, because it is a great honey-plant after all, even if the honey has no market value, for it takes the place of the better article in the hive; and for bee-production it has no equal. It might be asked, "Would bees take to it where it was used for feeding purposes?" I should say they do. If there is a honey-dearth when it is in the hives, it makes frame manipulation almost impossible. I have over 30 apiaries in this section, and all the surplus from this source is used for feed wherever feeding is to be done. For this purpose we have never used any thing quite so good. It is barreled up in the extracted form, and shipped to different parts of our field, and at the proper time used as feed for making increase or for stores where colonies are short. Hundreds of barrels of it have been used in this way; and by feeding it we are able to take from the bees the better grades of honey much closer than we otherwise could. This makes it a great factor in our business; but is this all?

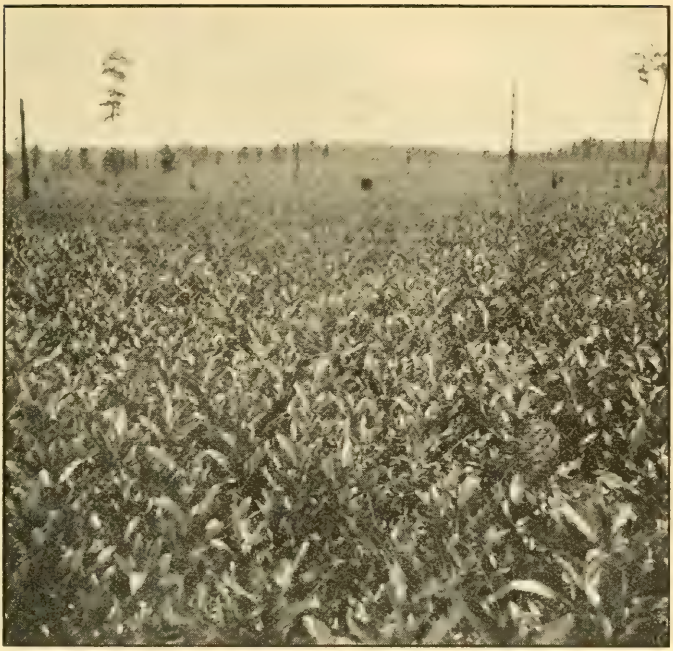

FIG. 2.—The chincapin growing luxuriantly in burnt-over timber land in Florida.

Again, nearly all our combs in sections and in frames are built during this flow; and as soon as it is over, the honey is extracted from the storing apartments, and the comb in sections and frames is set back on the hives; and when the flow of good honey comes on, the bees have nothing to do but fill the ready-built comb. The next flow usually laps into the chincapin flow just a little; but it is a weak one, coming on gradually.

Cordele, Ga.

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THE SNOWBERRY IN IOWA

BY DR. A. F. BONNEY

With this I send you photo of the snowberry (*Symphoricarpos occidentalis*).

Description.—A shrub 3-5 feet high; leaves oval or ovate, entire or undulate(?), glabrous above and below (under a 4-diameter lens); two and three bunches of flowers which are in short axillary clusters; pink in color; corolla bell-shaped; fruit a purple-black berry.

Distribution.—Rocky woods and wooded pastures; but I do not know where it is found other than in Crawford County, Iowa, although, like its cousin, *S. orbiculatus,* it is probably well known all over the State, particularly in the southern part.

While this plant has but three bunches of flowers the *O. orbiculatus* may have five or more, and the berry is redder (coralberry).

S. occidentalis is a good honey-plant, but the bees will not leave white clover for it. When clover fails, as it did in 1912, '11, and '10, the bees will store from it; and while its season is short at such times it yields well in drouthy weather. It is called buckbush and buckbrush here. The honey is white and of fine flavor, hardly to be distinguished from white clover.

I wrote to our State Botanist for a technical description, which I enclose:

Buck Grove, Iowa.

Snowberry (*Symphoricarpos racemosus* Michx.). An upright shrub with oval short-petioled leaves, downy underneath, and entire on the young branches; wavy-toothed or lobed; flowers in a loose and somewhat leafy interrupted spike at the end of the branches; flowers white, tinged with rose color, corolla bearded on the inside; berries large, white; ripen in the autumn. This species is widely distributed from New England to Pennsylvania, to Minnesota. The species found in Iowa is *Symphoricarpos occidentalis.* It sometimes goes under the name of wolfberry. It is a more robust plant. The flowers occur in loose terminal and axillary spikes. The corolla is very hairy within, but the same color. In Wisconsin and Minnesota the plant occurs in rocky ground. In western Iowa, where it is most abundant, it occurs on the loess soil.

The snowberry, also called "buckbush" and "buckbrush."

There is a third species which is common in southern Iowa and southwest, called the Indian currant, or coralberry (*Symphoricarpos vulgaris*), or sometimes buckbush. It blooms for a long time, and probably yields considerable honey.

Ames, Iowa. L. H. PAMMEL.

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SHALL I BUILD MY OWN HIVES?

BY R. J. W.

I have read very little in GLEANINGS about building hives and apparatus at home; but I am sure it is not because our editors are interested in selling them to us. I know of no journal that prints less free advertising than GLEANINGS. In our agricultural papers, poultry journals, and home papers, we find many contributions gotten up in good form, and treated in an able manner; but we find in the end that if the prices and postoffice address are not tacked on they may be found in a conspicuous place in the next issue. As I wanted to increase my apiary by about twenty stands I picked up a catalog and began to figure. I came to the conclusion that if the factories are getting rich it is because factory methods beat hand methods by just about as much as their profits and freight amount to. We often see the statement made that factory goods are more accurate than home-made supplies. My hives are just as accurate and true as any factory hives. I use a Barnes circular saw, and have plenty of wood-working tools, and am satisfied with the quality of my hives, and I know any one else would be; but what did I save by making them up at home? I can figure my work at $1.00 a day, and come out just about even. Will I do it again? Oh, yes! because I am a farmer, and can work for $1.00 a day in very bad weather in the winter, and because I enjoy the work.

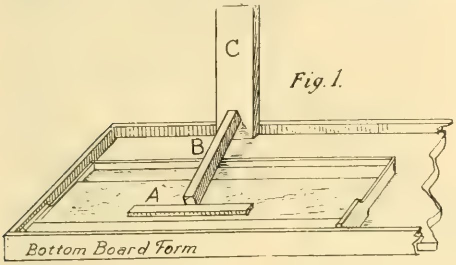
I could have made these hives in half the time, and out of lumber that cost half as much. Then would I have saved half? Not much. I would have lost it all, for my apparatus would have been a misfit, and would have been worse than useless.

If the factories are charging you exorbitant prices, getting rich fast, and making you poor, get out of your business, and get into theirs, and get rich too. Factories can raise the prices of goods just so high; but when they reach the limit you can manufacture your goods yourself; or if you are unable to do it, hire some one who can to do it for you.

A METHOD FOR RAPIDLY INSERTING FOUNDATION IN WIRED FRAMES

BY F. R. GORTON

Having occasion to fill several hundred wired brood-frames with full sheets of foundation I found the device herewith illustrated of the most satisfactory service.



A ¾-inch board 7¾ x 16¾ is nailed to a bottom-board for holding the frame in place so that the top-bar rests firmly against one side of a regular hive bottom-board as shown in Fig. 1. A thin piece 4 x 16½ inches, shown at A, fits loosely inside the frame for forcing the wedge into place.

In using the device, the frame is placed upright, resting on its top-bar, and the sheet of foundation is set into its groove behind the wires. The wedge is now inserted loosely, and the frame laid upon the board in the position shown in Fig. 1. By means of the board A, the lever C, and the short piece B, the wedge is forced into its groove with one pull on the lever.

If the frame is wired so that the free ends of the wire are at the right, all that is necessary to imbed the wires in the foundation is to hold the end-bars down and press the electric key G (Fig. 2) for about five seconds, and the imbedding is finished. The imbedding feature is made and operated as follows:

Two strips of tin about 1 x 4 inches are bent squarely at a point ¾ inch from one end, and nailed to the ¾-in. board as shown at E and F. These tins are placed so as just to touch the upper and lower wires when the end-bars are pressed down, thus stretching the wires tightly across the foundation. On pressing the key at G the electric current traverses the wires, thus heating them and melting them into the foundation, all four wires at once.

The electric connections are made with a 110-volt lighting circuit. H is an ordinary screw plug fitted with a double cord J, one free end being connected at E and the other with the key G. The key is a strip of spring brass attached at one end by a screw to the bottom-board, and bent down at the other. Its purpose is to break the electric circuit when the wires become sufficiently heated to melt them into the foundation. Ordinarily the bend in the spring holds it away from the tin F; but a slight pressure makes the contact. The brass may be wound with tape to keep the finger from coming in contact with any part of the circuit; but it is practically impossible to suffer a shock of any consequence. When the plug is screwed in place of one of the fuses through which the current has to pass to a set of lamps in the house as shown, the same current must pass through the wires of the brood-frame. If six or eight lamps are turned on, the current will be sufficient to heat the wires in about five seconds. Care must be taken not to get the wires so hot that they melt themselves entirely through the foundation. A few minutes' practice enables one to do fine work.

In case the lamps cannot be used in this manner as the controlling resistance, 150 feet of the wire used in the frames can readily be arranged in zigzag form on nails as shown in Fig. 3. This will reduce the current to about the strength obtained by turning on eight sixteen-candle-power lamps in the method shown in Fig. 2. After a

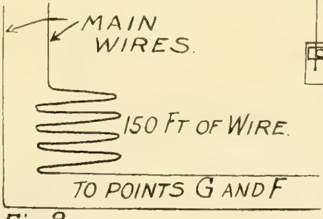
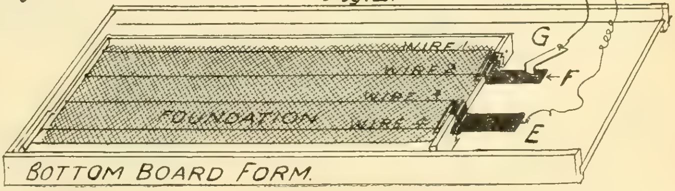


Fig. 3.

Fig. 2.



Fifth annual field day of the Connecticut Beekeepers' Association at the home of T. L. Pratt, Wethersfield, Ct., July 18. See report by L. Wayne Adams, p. 757, Oct. 1.

little experience the sheets of foundation can be inserted, wedged, and imbedded at the rate of one per minute.

Ypsilanti, Mich.

[Where one has access to an electric-lighting current, the electrical method of imbedding—heating all four wires at a time—is ideal. If resistance wire has to be used we recommend the use of a larger size of wire than that usually used in frames, and a much larger amount; otherwise the wire used for resistance will become just as hot as the wire that is being imbedded. If one has not had some experience in matters of this kind an electrician should arrange the apparatus.—Ed.]

MOTORCYCLE RUNS A POWER SAW

BY OSCAR RITLAND

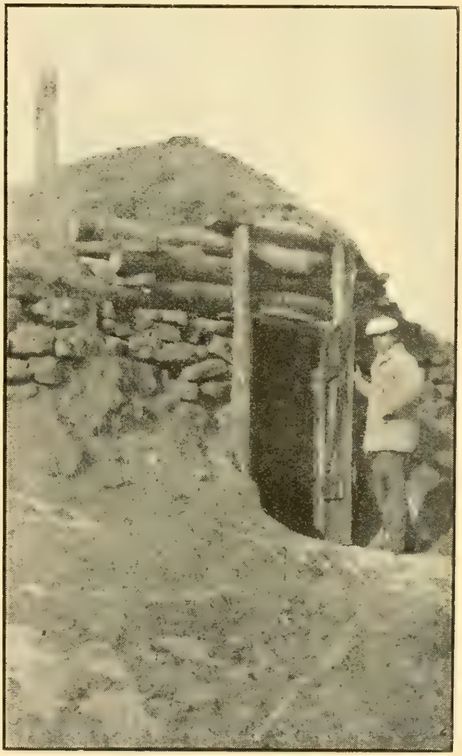
I am sending a picture of my workshop, and also one of my bee-cellar. As shown I run my saw with the engine of my motorcycle. I removed the fender from the back wheel and put the belt on the outside of the tire, and then around a mower wheel and over the mandrel. The material cost about $6.00 besides my work and the wood material. I have a rip saw and cut-off saw that are interchangeable, and I can cut any thing up to a 1¾-inch oak plank. The 5-h.p. engine furnishes all the power I can possibly use.

I make all my hives, covers, bottoms, etc., but I buy the frames, as I cannot make them as smoothly nor as cheaply as they can be made in a special machine. I would never advise any one to make his own supplies if he does not have a power saw.

THE BEE CELLAR.

This is built in a sandy side hill sloping southeast. It is 10 x 10 x 9 on the inside with an earth wall 4 ft. thick on the front and 2 ft. of earth on the roof. There is a sub-earth ventilator and an ante-room 4 ft. wide. I placed 41 colonies in this repository Nov. 17, 18, 1913, and they were always perfectly quiet. Although the temperature varies many degres outside, it stays the same inside. I think this cellar will winter 75 colonies, or 100 if ventilation and temperature are watched closely.

Elroy, Wis.



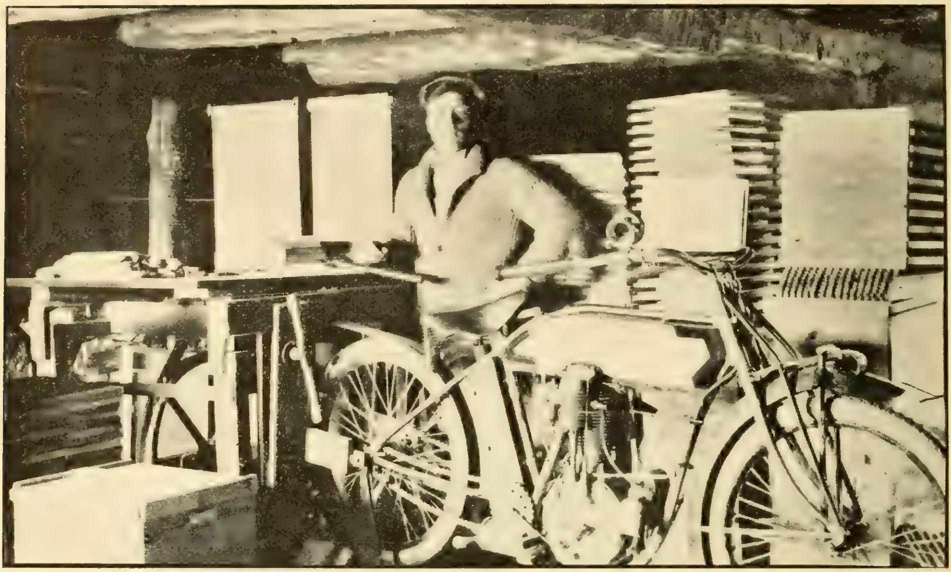
Ritland's side-hill bee-cellar.

UTILIZING THE HONEY IN CAPPINGS FOR FEEDING

BY R. POWELL

My way of handling cappings while extracting may help some one, so I will describe it.

At the close of the day's extracting I take the cappings and crumble them until they are like dough, and let them drain until morning. Then there is but little honey left in them. One who has not tried working them up will be surprised at the difference in drainage (a mason's trowel is a good tool to do it with). After they are thoroughly drained I turn them into an eighty-gallon tank until it is two-thirds full (pressed down). Then I put in ten gallons of water, place the tank over a fire, and bring to a boil. After cooling, the wax will be floating on top. I draw off the sweetened water and strain it. I next give it a thorough boiling; and while it is boiling hot I pour it into five-gallon screw-top cans.

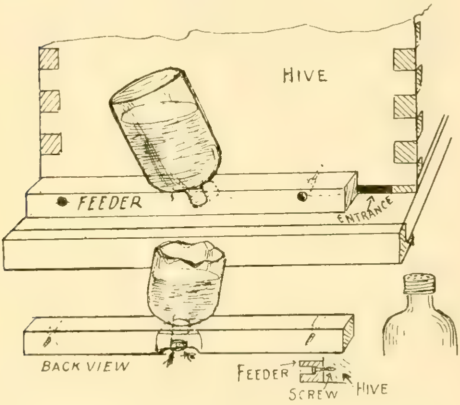


Running a power saw with a motor cycle.

I put a rubber packing into the cap of the can instead of the paper packing, and turn the cap down while it is boiling hot, using a wrench. If the work is thoroughly done the contents will draw in when cold, and will keep any length of time.

I label it when put up, by whom, and the percent of water (this I ascertain by the increase measurement.) The addition to the water measurement is honey.

This is safe to feed, as it has been thoroughly sterilized by boiling. When first opened it will suck air, and one can readily tell that it has not been tampered with. I always keep this feed in the apiary so that I can feed it at any time. This is safer than drawing from colonies that have a surplus, and I have found that it pays to be on the safe side.



The feeder which I use, an illustration of which is given in connection with this article, may be of interest to beekeepers who have never tried this plan of feeding. The block of wood is screwed up against the entrance on one side, closing that side; but it leaves enough space for entrance at the end of the feeder.

In this block I insert a bottle full of feed (I use Armor's empty grape-juice bottles). I take out the cork packing of the tin stopper of the bottle, and punch a hole in the tin cap with a three-penny nail; turn the bottle upside down with the cork end in the hole, and the bees do the rest.

The feed can be put up in the bottles instead of the five-gallon cans by using corks. In this way they will be very convenient. This feeder is excellently adapted to queen-rearing, as one can regulate the flow by the size and number of holes. All bottles made by this firm that have metal stoppers have the same size of neck.

TREATMENT OF AMERICAN FOUL BROOD.

I keep an eighty-gallon galvanized iron tank on hand; and as soon as I discover a case of American foul brood I get this can and wet and double a blanket. I put five gallons of water in the tank, place the whole on a wheelbarrow, and wheel up to the colony affected.

Then I have an assistant open the hive. While he smokes the bees briskly I pry all the frames loose in the upper story. Then the assistant takes the smoker in one hand. and with the other hand he takes hold of the wet blanket, which (doubled) is placed as a cover to the tank on the wheelbarrow. I shake the bees off the combs (no brushing), and throw them into the tank. Because of the amount of smoke and the shortness of the operation no robbers will bother. We then lift the tank over a brisk fire, placing some close-fitting boards on top of the wet blanket. In a few minutes the steam will rise so densely as to cook thoroughly every thing in the tank.

If there is much honey I can it and feed it. As a rule this will not pay. If honey is coming in I give the bees foundation; if not, I give them an old comb for 24 hours, then take it away and melt it or burn it, and give the bees combs and feed them.

This tank will hold from forty to fifty combs, so about four single-story or two-story hives can be treated.

If bee inspectors were to carry a can like the above while inspecting, and treat the bees by this plan, then and there, there would be no American foul brood very long. Two men could easily treat fifty colonies a day.

Riverside, Cal.

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BEES ON A SMALL CITY LOT

BY WALTER M. JOHNSON

W. M. Johnson.

Some people have the idea that bees will not do well on a city lot. I think this is a mistake. In the spring of 1909 I had a severe case of bee fever. I wanted some bees of my own, as I thought there was a market for all the honey I could get. Some told me that bees would never do well unless they were on a big farm where they would have woods from which to get honey-dew! I thought I would see for myself whether or not bees could be kept on a small space of ground.

I planted some Spanish buckwheat on all the ground I had, and my seven colonies of bees did extremely well. I think that success depends on the care and attention the bees have. Beekeeping is a very profitable pastime for city fellows. I haven't as many colonies of bees as I should have if I had the time; but I am going to get more and go into beekeeping right before long. I am going to change from the black bee to the Italian, for they are the best honey-producers for me.

After I had kept bees for a while I experienced a good many troubles which I suppose many beginners have. I did not know how to avoid them, so I began to search for a magazine for beekeepers. When I found Gleanings I knew it was a good magazine for me. I think every beekeeper should have a good bee magazine, just as farmers and other professional men have their magazines.

Jenison, Ala.

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HOW A BOY'S INTEREST WAS AROUSED

BY R. S. SATTERFIELD

It must have been in the springtime, years ago, when my father and older brother ate an early dinner, got in a farm wagon, and drove away. At what hour they returned I do not know, but I presume it was in the latter part of the night. Out in one corner of the yard next morning were six or eight "bee-gums," boxes about a foot square and two feet high. I learned that the bees belonged to Mr. Phillips, and that father had agreed to keep them and to give Mr. Phillips half the honey and half the increase; but just when I learned this I do not know. This contract remained in effect for ten or twelve years.

The next thing I remember about the bees after that first morning is a swarm coming out. I remember that father used an old cow-bell and mother a small dinner-bell. Around and around they went, through the garden and out into the orchard, where the bees settled on the body of the old June apple-tree. Father surely did look funny with one of mother's bonnets on, tied close up under his chin, the skirt of the bonnet under his coat, and his coat buttoned all the way from top to bottom and the collar turned up. It was funny, too, to see him go up and brush a few bees off and then run and crouch down among the currant bushes. At last mother took hold and succeeded in hiving the bees. It turned out that mother had to manage the bees, father assisting when they settled where mother could not get at them. The surplus honey was secured by placing a hive over burning sulphur and killing the bees. For years the increase of the season would be killed off in this way, leaving the usual number of six or eight colonies to start in with the next spring.

I became mother's assistant. By the time I was twelve I was making the bee-gums, and a little later I was in the woods at the proper season, when I could get off from work hunting bee-trees. Father and the other boys always went to town, four miles away, on Saturday afternoons. Not so with me. I spent this leisure time fishing, squirrel-hunting, bee-hunting, or in the shop where the tools consisted of a saw, plane, square, hammer, brace, bits, and a chisel or two.

One Saturday night father said to me, "I wish you had been in town this afternoon. A man took a bee-gum and knocked it to pieces, put the combs in small frames, and tacked strips across to hold it in; put these frames in a box, and smoked the bees into it, and set them over in the corner of the hotel yard. Nobody got stung, although a big crowd was there. Then he told a lot about bees."

Of course I did not rest until I saw this man and learned what he could do with bees. It resulted in father's buying one of his hives and a smoker, and a permit to make and use the hives in the county where we lived. (We afterward found that the hive was not patented, and anybody who chose made and used them.) The man who sold these hives gave his name as Pickerel. He was a red-headed, red-faced man, rather witty, and very tactful. I remember one boast he made was that he had been in every State in the Union and in Canada; that he had never voted, and had never paid any tax. It was wonderful how he stirred that region. People went wild over bees. With the majority this interest was short-lived.

At this time father bought out Mr. Phillips and turned the bees over to me. My interest grew, and so did my knowledge, and my stock of bees and the profits too. At the end of eight or ten years, when I went away to college, there were between seventy and eighty colonies in the yard. At the end of three years there was not a colony living. Father said the worms and an unusually hard winter killed them.

Pauls Valley, Okla., Jan. 30, 1914.

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THE TEMPERATURE OF THE BEE COLONY

Condensed by H. R. Calvert from U. S. Dept. of Agriculture Bulletin 96, covering experiments conducted by Burton N. Gates, Ph.D., formerly Apicultural Assistant, Bureau of Entomology.

The paper from which this summary is made was written to fill a need among beekeepers for more accurate knowledge of the temperatures and changes in weight of colonies of bees, particularly during the winter. Such knowledge of the changes in temperature and weights is helpful in a study of methods for successfully coping with one of the greatest difficulties which the beekeeper has to meet—the wintering problem.

The scope of the work accomplished is indicated by the following figures:

Period of experimentation, Oct. 22, 1907, to Sept. 26, 1908.

Number of observations, 2576+.

Number of separate readings, 20,000+.

The apparatus included a finely adjusted, specially constructed platform scales which registered with a sensitivity of 10 grams and a maximum of 200 kilograms. Seven mercury thermometers of the incubator type which registered to a fifth of a degree, and were graduated to the Centigrade scale; a ten-frame hive of five stories, including all its appliances—feeder, apparatus to be used in emergencies which was stored in the lower story, two colonies of Caucasian bees, and a check colony in an observation hive placed near the colony on the scales.

Four thermometers were inserted at regular intervals between the central combs, a fifth placed at the rear of the hive between the third and fourth combs from the side, this one to represent the temperature of the margin of the cluster; a sixth, inserted beneath the frames through a collar, and the seventh suspended close to the hive in such a way as to register the temperature of the air which surrounded the apparatus.

The apparatus was installed in a shed on a third-story back piazza in southwest Washington, D. C. In July, 1908, it was necessary to transport the experiment to College Park, Md. This, however, was found to have in no way affected the results.

Since none of the instruments recorded automatically, readings of both weights and temperatures were taken at least every hour throughout the working day; and, while the hive was being manipulated, every half-hour or quarter-hour. On the average of about once in three weeks, by means of assistance, it was possible to take consecutive readings for a period of two or three days. Temperatures were read to fifths of a degree, and weighings made to 10 g. Every alteration or manipulation of the colony was recorded. Hourly changes in the weather and activity of the bees were also noted.

It was not possible from the readings to detect any relation or rhythm in the consumption of stores to changes in temperature due to metabolism. Nevertheless, several significant facts concerning the consumption of winter stores were discovered.

The rate of consumption of stores exhibits a relatively constant decrease from month to month. Consumption, however, slackened as the season progressed.

Humidity was a factor which noticeably influenced daily results. Although condensation tended to prevent a drop, or even to raise daily readings, the increase in weight could neither be permanent nor affect the total results; as whatever water condensed during bad weather would evaporate during the following days of fair weather. Consequently the records of a single day are less significant than the averages of a month or of the season.

While the average daily consumption for November was 53.2 g., the average for February was but 30 g. daily. The average for the entire winter was 43.5 g. daily. While these are the figures for average consumption, no such degree of constancy existed between daily readings. The fact is, a daily variation in weight all the way from a loss of 130 g. in some cases, to an increase of 40 g. in others, actually existed.

Some interesting observations were made upon the cluster which are significant. During the winter the bees are relatively quiet; the cluster expands, and the bees fly only on the warmest days. The heat maintained in the cluster has a general relation to the prevailing temperature of the air; but it was observed that the temperature at the center of the cluster increased as the outside temperature decreased, due to the crowding together of the bees in cold weather. The curves made from the readings show that the *maximum* temperature within the cluster occurs practically simultaneously with the *minimum* outside, and *vice versa,* except in March, when, with the commencement of egg-laying, the temperature of the brood cluster became more and more constant. At all times the cluster was very sensitive to changes in the external air, responding readily and readjusting itself quickly so as to keep at a temperature ranging from 62.6 F., the lowest, up to 91.76 F., the highest. Contrary to what might be expected, the cluster thermometers reached their maxima and minima later than the outside thermometer; but seldom, and only in severe weather, when changes were rapid and considerable. It might be inferred that the relation of the maxima and minima of the temperature of the center of the cluster to the outside temperature might be due to a "lag" or delay. For instance, corresponding to the minimum of the outside temperature on the 4th of February, the minimum of the cluster temperature came nine hours later. If this was due to delay or "lag," maxima and minima are in some cases delayed twenty-four hours or more. But this cannot be, because there are many minor variations which appear on the curves, and which are synchronous.

Thorough comparison of the charts failed to provide suitable material for conclusions as to the cause of the "lag," as the experimental colony furnished no data for a consideration of humidity and condensation; and the factors of convection, radiation, and conduction cannot be conceived as slow enough to retard the cluster temperature from nine to twenty-four hours, nor would it account for its minor synchronous variation.

It was found that opening, manipulating, or in any way disturbing the hive, would cause a corresponding temporary rise in temperature.

In regard to the behavior of the bees in the cluster, we will quote from the author concerning the apparent interchange of bees from the inside to the outside of the cluster.

> As the writer watched the cluster, the head of a bee would gradually appear from below the bees forming the shell of the cluster. Finally this bee emerged and took her place with the others on the outside. Similarly bees were frequently seen to disappear into the mass. The behavior was in no way general, but apparently was going on constantly and gradually. The phenomenon was repeatedly observed under all manner of conditions and at different times of day and night. By carefully arranging the covers, so that it was unnecessary to remove them, and thus cause a jar, it was proven that this behavior is normal, and not the result of a disturbance of the bees. It must be concluded, therefore, that in this way the same bees may not be exposed to the outside cold for a long period. So long as they are able to keep up their own body temperature they remain outside; but when chilled they pass into the interior.

One fact which might be of interest to beekeepers is that the thermometer situated below the bottom of the frames and cluster registered almost identically with the outside thermometer at all times, both on the coldest and warmest days, which showed that throughout the season the temperature below the frames was practically the same as that of the outside air.

The transition within the hive from winter to summer conditions was accomplished in a surprisingly short time. Accompanying incubation and brood-rearing, the temperature was gradually raised and became equalized through the hive; and when once well established it was maintained during the summer. Although the transition was abrupt, it would be expected to vary with the colony, and even be prolonged in bad weather.

NO HONEY IN MINNESOTA

BY J. ALF. HOLMBERG,
State Inspector of Apiaries

The season of 1914 in Minnesota may be said to be almost a failure. This is due to the fact that the spring was wet and cold, and then the hot weather came on so suddenly the bees had very little chance to get any surplus honey. In my visits through the State this summer I saw any amount of flowers, but the bees would not work on them at all. In only one place have I sampled basswood honey, and this is very seldom the case in this State. Feeding will be necessary in many places.

I expect to see a real bumper honey crop next season, as all conditions seem favorable; and if the spring opens up right, I don't see why honey should not be plentiful.

Foul brood, which has been very threatening in this territory for a good many years, is now well under hand, and I see no reason why it may not be overcome completely if the beekeepers will only co-operate. I do not blame the beekeeper for being the careless one; but it is the man who keeps bees and is not a beekeeper who really starts the trouble. I have visited many places where I have had to plead with the man before he would allow me to examine his bees to see whether they were in perfect condition so that his neighbor, making his living on bees, might rest assured his bees would not become infected through the carelessness of his neighbor.

St. Paul, Minn.

NOTES FROM GERMANY

How Many Trips to the Field does a Bee Make in a Day? How Long Does it Take to Fetch One Load? How Long Does a Bee Remain in the Hive Between Trips?

BY J. A. HEBERLE, B.S.

An interesting article by Walter Lunden is making the rounds of the German bee-journals. In this he describes an experiment designed to answer the above questions. The problem is complicated, and difficult to solve. The answers will be as varied as the conditions. Especially important is the distance of the source of nectar and the abundance of it in the flower visited.

In the afternoon of July 14, 1913, Mr. Lunden caught bees from a good colony that was conveniently located for observation, and marked the bees, six in all, on the thorax—white, yellow, orange, green, blue, and red. Gold, silver, and copper bronze were not used the first day. He found that marked bees behaved no differently from the others.

On the 15th of July the observation began at 6 A. M. The weather was fine, the honey-flow from clover.

A colony on the scales showed at 10 A. M. a loss of 900 grams, which he attributed to the bees flying out to the field for nectar and pollen. In his calculation he takes the weight of one bee at one-ninth of a gram, and concludes that about 8000 bees had gone out foraging. Between 10 and 11 A. M. the weight remained about the same. The bees flying out were balanced by the incoming nectar. At 2 P. M. the 900 grams, the weight of the field bees, was equaled by the stored nectar. At 6 P. M. the increase in weight was 2300 grams; 700 grams were lost by morning through evaporation, making a net gain of 1700 grams—nearly 4 lbs. A thunderstorm between 4 and 5 P. M. cut off the flow. The best day had been 2900 grams net; 2100 grams, or 4 2-3 lbs., the following morning.

Mr. Lunden stayed at his post of observation till 7 P. M., making it 13 hours, without interruption. His meals were brought to him. A few times marked bees were seen going out or coming in, and were marked with an interrogation-point. Green had been oftener overlooked, because this color is not so easy to notice as some of the others used in this experiment. In the afternoon more of the colored bees were overlooked than in the forenoon because the observer naturally became somewhat tired.

He summarizes his observations as follows: A field-bee makes about ten trips a day. A trip takes from 30 minutes to two hours—on an average about one hour.

The field-bee remains but a short time in the hive—from five to ten minutes.

Mr. Lunden thinks that the fanning at the entrance is not only for ventilation but also a training for flying.

Bees that made regular trips to the field did not fan—only those that stayed at home, and in the afternoon made their first trip. The next day these fanning bees made trips to the field in the morning.

The following day other members of his family continued the observation with similar results.

RED CLOVER WITH A SHORT COROLLA.

Beekeepers of the Old and the New World have often expressed the wish to have bees that could gather nectar from the common red clover. Once the hopes of the beekeepers were raised several degrees by the prospect of introducing and domesticating the large Indian bee, *Apis dorsata.* It was supposed that, from its size, it would be able to gather nectar from red clover and from other plants that are not visited by our bees. A beekeeper with two apiaries, one of the *Apis dorsata,* and one of the *Apis mellifica*—would be almost certain to make a crop from at least one of the apiaries. For a short time the long-tongued red-clover queens opened visions of sweet treasure to the believing beekeepers.

Now some, sanguine of success, try to breed bees larger in size than our common ones. Besides being stronger and of more robust health they would likely have their tongues a little longer just to reach the nectar in the red clover. Such endeavors probably arouse the interest, lead to thinking, experimenting, studying, and may bring something different from the object sought that will benefit the craft.

It is believed to be easier to raise a variety of red clover with a short corolla than bees with longer tongues. According to the *Bienenvater,* Mr. V. Wuest succeeded in crossing red clover, *Trifolium pratense,* with *Trif. pannanicum.* The resulting crossing has a corolla of only 5.87 to 6.14 millimeters, while the corolla of the common red clover measures 8.26 to 9.54 millimeters. Should that be so, and if the new crossing grows as profusely as the common red clover, it would be a very valuable addition to our bee flora.

THE GREAT GERMAN BEEKEEPERS' UNION.

After various fruitless attempts the leaders of the many associations succeeded on July 5 in Frankfurt to amalgamate all into one great federation, with nearly 160,000 members. Its name is "Vereinigung Deutscher Imkerverbande," the abbreviation being V. D. I. Harmony prevailing, this organization can do much to further the interests of the beekeeping fraternity. Reasonable demands by "the powers that be" will be carefully considered.

Kempten, Bavaria, Germany.

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BEES AND HONEY IN HISTORY

BY T. G. ADAMSON

Biblical history starts about 5918 years ago. May we assume that the honeybee was in the garden of Eden? Any way, we read of honey first 3621 years ago, when Israel sent Pharaoh a "little honey." Is not this the first historical record of export? We may be sure it was much valued, for sugar was unknown in these days; therefore honey would be the only sweetmeat known. How all Pharaoh's womenkind would come around for a lick!

From Genesis to Revelation we read over and over of bees, honey, and honeycomb, covering a period of over 3700 years. What changes in bees in these years and methods of keeping and breeding! What disasters and times of scarcity of honey! The word of God is compared to honey for its sweetness, and frequently honey is figuratively mentioned in the Bible. Honey and bees are referred to in the Bible over a score of times.

Palestine was well adapted for beekeeping by reason of its climate and great variety and plenty of aromatic flowers. Perhaps they had alfalfa or lucerne as well. There were limestone rocks in which the wild bees lived; also hollow trees and dried carcases. The hives belonging to the Jews were made of clay for coolness. A favorite name for women was Deborah, meaning a *bee*—a good worker.

The Pharaohs had bees embroidered on their robes as emblems of royalty, and Napoleon did likewise. We may assume that his visit to Egypt was productive of much knowledge to him. Napoleon had the queen-bee profusely embroiderd on his mantle of state.

The Romans had laws regulating beekeeping, some of which dealt with swarming and the ownership *en route.*

The ancient astronomers named a cluster of stars Præsepe, meaning the beehive.

The kings of England in the Middle Ages called the Jews their honeybees because the Jews contributed largely to the kings' revenue; but they did so under compulsion.

The great musicians of the past paid their homage to the bee; for did not Mendelssohn compose the "Bees' Wedding," said to be among his masterpieces?

We read in some old histories when man could leave records that he was found with sheep and carrying about sections of trees containing bees and honeycomb.

What would Pharaoh, Israel, Columbus, the Pilgrim fathers, Captain Cook, say if they were to see a modern apiary with a motor-driven extractor at work, and witness bees being moved 1500 miles by road, rail, steamer, and producing, perhaps, a score of tons of honey? May we assume that there has been more advance made in the honey industry in the last 100 years than in 3000 years previously?

Ngoora, Nemengha, N. S. W., May 20.

HOW TO SELECT A BREEDING QUEEN FOR REQUEENING ONE'S OWN APIARY

BY FRANK BUTLER

The bees that get the honey are the ones the beekeeper wants, and are the only kind there is any profit in having. Good bees for honey-gathering make necessary good queens. In order to secure good queens, the apiary should be headed by one or more strictly first-class breeding-queens. It seems, therefore, that the breeding queen is quite as important as any thing connected with the apiary.

But how is a beekeeper to select one and know that she is the best? So far as I can see they can hardly be tested sufficiently for requeening the entire yard much before the third year. As an instance, from one colony which gave a large yield and did not swarm I reared a number of queens the next season. All proved of no practical value. Another colony which did equally well in storing honey and from which I reared a number of queens gave quite different results. I found that a large percentage of the queens would duplicate the old one in storing honey. When a swarm issues from one of these colonies it will be found in most cases that there are very few cells started—rarely over two or three—and this, by the way, is one of the best indirect methods of judging a good queen. Here, then, is my idea of a good queen.

Of course, good wintering, gentleness, and, if run for comb honey, the bees' ability to store a good fat section well sealed to the wood, must be taken into consideration. If one has an apiary of 50 colonies or more, some one queen will match up to the above specifications. If selection in breeding is practiced, it will be found that, instead of a few colonies giving a large yield, one colony will do about as well as another.

Dover Plains, N. Y.

NEW PRINCIPLES IN HIVE METHODS

BY J. E. HAND

No apology for suggesting an improvement in hive methods is necessary, in view of the fact that present-day hives are totally inadequate to the needs of modern methods. No improvement in hive methods has been made during the past quarter-century, simply because we have all along been contented with small hives—hives of insufficient capacity for the development of correct principles. First, and foremost among all the qualities that should recommend a hive, is capacity. With a properly proportioned hive of suitable capacity all things are possible, for hive troubles will vanish before it, and the most intricate problems are solved with the greatest economy. We may rest assured that no hive is too large so long as the extra capacity is fully utilized for the development of economical and valuable principles.

Secondly, beekeeping is virtually an all-the-year-round proposition; and a hive that furnishes protection for its colony in summer only is but half a hive at best, and the lesser half; for with the wintering problem unsolved, no beekeeper in the North is complete master of his profession, regardless of his other qualifications. Outdoor wintering of bees is rapidly and surely coming into favor, and there is urgent need of a hive that will provide perfect protection for its colony 365 days in the year without extra equipment; for equipment is but another name for expense that lessens profits. To demonstrate chaff-hive conditions, in a new catalog issued by a Western firm, chaff hives are listed at $4.25 without any summer equipment except frames, which means that we must pay that price for indifferent winter protection, with an added expense of several dollars for summer equipment in order to make it an all-the-year-round hive.

Regardless of utility, the one item of "expense" is sufficient cause to relegate present-day chaff hives to the scrap-heap in favor of a hive that provides perfect protection for its colony 365 days in a year with practically no extra equipment more than is required for summer use. It is not the purpose of this article to criticise present-day methods without offering a remedy for existing conditions; and were I not in position to introduce a hive and system that meet the exigencies of modern methods this article would not have been written. I take pleasure in introducing the new hive because it is the embodiment of valuable principles. It is of 16-frame capacity in summer, and 8 in winter. It is named "the Convertible hive" because it is converted from a single-wall summer hive to a double-wall wintering hive, providing the most perfect protection in winter with practically no extra equipment. To comprehend fully its economical solution of the wintering problem it is necessary to understand that an ordinary 8-frame hive is 14 x 20 in., while the Convertible hive proper is 26 x 20 in. Thus, when the frames are removed from the latter hive it will take in an 8-frame hive-body crosswise, and leave approximately two inches of space for packing between the walls of the two hives; and the top story provides for abundance of packing on top without the chaff-tray nuisance.

To prepare the colony for wintering, place the 8 combs, including the bees, in a shell 12 inches wide inside and 12 inches deep, made of any old stuff ⅜ thick. Place the shell containing the combs and bees in the center of the hive crosswise; bridge the space between the outer and inner entrances; bridge the tops of frames for a winter passageway; cover with a quilt; put on the top story and pour in the packing, working it down into the spaces with the hand, and fill up the hive within an inch of the top of the upper story. This space is for the circulation of air under the cover, which keeps the packing dry. This method provides for 2½ inches of packing on each side, 2 inches at each end, and 7 inches on top, with a 3-inch space under the combs—a very desirable feature not found in any other wintering hive. It is superfluous to add that such perfect protection as this will winter bees safely in any location where they can be kept with profit; and the best thing about it is that no expensive or cumbersome equipment is necessary, for every hive is a perfect wintering repository.

Every year bees are shipped from the South by the carload to make up for winter losses that would not occur if right methods were practiced. So long, however, as the demand for bees continues, increase of stock should form an important part of the profits of beekeeping. The Convertible hive solves this problem, and explodes the theory that increase is secured at the expense of the honey crop. To demonstrate, it will be noticed that the Convertible hive has 16 frames in summer and 8 in winter, and less labor is required to place the extra 8 combs covered with bees, in a separate hive at the close of basswood harvest, than to brush off the bees later in the season when bees resent such a disturbance and store the combs, taking chances on damage by mice. Viewing it thus, aside from the extra queens, 100 per cent increase is a spontaneous production that costs nothing, merely utilizing brood, bees, and combs already on hand. All except the combs would otherwise be lost, for a 16-frame colony will be no stronger in bees April 1 than an 8-frame colony. The time to increase colonies without interfering with the honey crop is right at the close of the basswood and clover harvest when the hives are full of brood and boiling over with bees. With the right kind of hive and system the number of colonies can easily be trebled after July 20 without materially affecting the honey crop.

Queen-rearing is an important factor in forming increase, and a part of the program for which the Convertible hive is especially adapted. To demonstrate, the main entrance to the hive is in the side, with a small one in one end, which is always open, and is used in queen-rearing operations. When queens are needed a nucleus is formed by placing two or three combs of brood and bees next to the end of the hive having the entrances, closing them up with a close-fitting follower, covering them with a cloth, thoroughly separating them from the colony. Bees that have the habit of using the end entrance will continue it, and we have a queen-rearing nucleus in working order.

It is thus that queens are reared without extra equipment, and without interfering with the legitimate occupation of honey production. When practicing the method of 100 per cent increase in connection with a full crop of honey, when no increase of stock is desired, it is advisable to make the division at the close of basswood bloom, and winter the two colonies separately, and in early spring place them both in one hive separated by a thin division-board into two distinct colonies, and utilize the empty hives and extra queens for the current season's increase. The extra queen and two combs of brood covered with bees are removed for this purpose at the beginning of the clover harvest, and held in reserve for the autumn division. The division-board is also removed at this time, and the two colonies united for the harvest, and again divided at its close. This method ensures a strong force of workers for the early harvest without any attention, and is a safeguard against queenlessness, and queens are always on hand for the annual division. Whether the increase is sold in the spring or united is optional. In either case, however, the returns will more than pay for the extra hives in one season. This system was formulated for the express purpose of operating in conjunction with the Convertible hive, and such results as herein demonstrated, while a spontaneous production with this hive and system are possible only with a hive of extra large capacity.

Birmingham, Ohio.

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BEEKEEPING IN THE SWAMPS OF NORTH CAROLINA

BY F. L. HUGGINS

Having kept bees for ten years I feel as if I knew just a few points in the business. Probably not over five per cent of the bees in this locality are kept in movable-frame hives, the old-fashioned "gum" still being in vogue. Having from the first used only the most improved methods my progress has been watched with interest by the natives; and this year, when I got 6000 lbs. of extracted honey from 50 colonies, they were dumbfounded. From four colonies I got 70 gallons, or 840 lbs. This honey comes almost entirely from black and tupelo gum; and as these trees do not bloom until May there is no danger of frost, so, as the natives say, they "hit every year."

My colonies have an excellent chance for early brood-rearing, as the soft maple blooms early in February, furnishing abundant pollen. I have had queens fertilized as early as February and as late as November.

Up to this year I have used queen-excluders, but have discarded them. Last year, by accident, a few of my colonies did not have these boards, and I noticed they did better than those that had them, so this year I used none, and my average was the best I ever had!

I also discarded escape-boards this year, simply taking off the shallow extracting-supers after smoking, and putting them in the honey-house, this being provided with escapes. The next day extracting could be carried on with ease.

We are absolutely free of bee disease—not a single case ever being known in this State.

Wilmington, N. C.

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Full Hives

BY GRACE ALLEN

Down within the darkness where the bee republic dwells,
Packed in polished centers of a thousand silver cells
Hangs the fragrant honey like a wonder-dream come true,
Hangs the fruit of summer, shot with beauty through and through.

Fairy-like the sun-lit gift of scented sweetness rare!
A million times have silken wings gone throbbing through the air
To drain it, drop by shining drop, from some bright-hearted bloom,
And bear it from the brilliant fields to ripen in the gloom.

Oh visionings of virgins! when the joy of service yearns
Till it fills to overflowing all the waxen-welded urns,
And seals them with a dainty seal, and lifts a song of praise
That summer's living sweetness shall not die with summer days!

Heads of Grain from Different Fields

THE BACKLOT BUZZER

That blamed bee in there had better look out. I got caught on a fly-wheel once myself.

Clipped Queens Superseded.

About four weeks ago I bought three golden queens. These I introduced without trouble to three queenless hives of bees, and had no trouble until about two weeks afterward, when I clipped all three queens. Being a novice in beekeeping I clipped both wings on each side, instead of only those on one side. After about one week I found one of the colonies queenless, and three or four days later another of those queens had disappeared. Two days ago the last one was found to be missing; and as every precaution has been used in opening the hives, I cannot but think that the bees have rejected these queens, due to my having clipped them wrongly, and killed them. I do not know whether the above is a common experience, but shall take precaution another time to clip on only one side. The proof that all the queens are missing is that queen-cells have been started in every hive.

I notice in a late number of GLEANINGS, in an article by Mr. A. C. Miller, that "Old Man Philetus" has all his combs filled with worker brood except the lower part of one comb in each hive, which is filled with drone brood. Are we to understand from this that it is desirable to place a strip of drone foundation in every hive in order to raise a small percentage of drones in this way?

Sacaton, Ariz., Oct. 24. HERBERT MARTEN.

[No doubt the queens were superseded because they appeared mutilated to the bees. In clipping, the queens are sometimes injured slightly so that they are superseded; but it is a little singular that all three of your queens should have been rejected, even though you did clip the wings on both sides.

The greatest difficulty is to prevent too much drone comb, and ordinarily it is not necessary to insert any drone foundation. Bees manage to build enough drone-cells to answer all requirements. In case of a queen-rearing yard it sometimes is best to provide drone foundation for a colony selected to rear drones; but in ordinary honey production such would not be necessary.—ED.]

A Beginner's Questions.

1. How deep a space between brood-frames and hive-floors can I leave and avoid danger of the bees building comb below the frames?

2. Where two brood-chambers are used, how much space can I leave between the two sets of frames and have no comb built between?

3. Where dummies are used in place of frames, how much space is it safe to leave between dummies so no comb will be built?

4. In using the shaken-swarm method as explained in the late A B C and X Y Z, if I shouldn't want any increase how soon would it be safe to unite the shaken swarm with the old colony and yet keep them from swarming?

Coffeyville, Kans.

[Dr. Miller replies:]

1. You may feel quite safe with ¾ inch. In general you might be safe with an inch, although there is a difference in seasons and perhaps in bees, so that sometimes an inch would be too much.

2. It is a little doubtful if you can settle upon any given space between two stories for which the bees will have such respect that they will never try to bridge the space with either comb or glue. Perhaps the nearest to it is about ¼ inch. In a space less than this, glue is likely to be put; in a greater space, comb.

3. That depends somewhat on circumstances. If you put two dummies in the center of a brood-chamber, with a strong colony in best condition during a heavy harvest, the bees might sometimes build in a space of half an inch, pretty surely in a ⅝ space, and not at all in ⅜. If the dummies were at the side of the brood-nest, you might find ⅝ safe. If the colony be queenless, you are not likely to find comb built between two dummies outside the brood-nest, no matter how wide the space.

4. Probably about ten days. Of course all queen-cells would be destroyed.

A Rain-barrel Cistern for the Beeyard.

One who does not work among the bees at a yard in an out-of-the-way place can hardly realize how gratefully many beekeepers whose yards are not most conveniently located receive a suggestion or plan, either to lighten labor or bring comfort to the operator who is compelled to do his hardest and most messy work under trying circumstances, as, for instance, right in the hottest time of the day. Just think of the item of water—not for the bees, as the yard should be located so as to provide for that, but plain pure drinking-water, to be had at the right time when one is fairly famishing for a drink. I have somewhat of an inventive turn of mind, and have thought out a number of schemes for the comfort of both operator and bees. The one that brings me more pleasure and comfort than all the others is my water-barrel. The idea may benefit some one else, so I will share the plan.

Get a large barrel—a 59 or 60 gallon size will do. Prepare a base or pedestal for the barrel to rest upon, lying down. Have the base just high enough so that a water-bucket can reach under the end of the barrel, which, in position, has the bung on top. Then get a cheap metal washpan (any old one will do) and cut or punch a round hole in the bottom of it. Get a hollow wooden-bung stopper (your merchant will give you one that comes ready made in the ends of a roll of wrapping-paper). Now tack this to the bottom of your pan so that you will have a good funnel, which you will place in the bunghole of the barrel. Then cut out a piece of screen wire and lay it across the pan to act as a strainer, and to keep out insects and debris. A little melted paraffine or wax will fasten it in place.

The barrel or cistern is ready for use. I might add that it should be placed on the shady side of the beehouse, where the sun will not shine on it, or, better still, under the house, if the house is high enough from the ground, which it should be. A small auger-hole in the lower end of the barrel, to be closed with a soft wooden plug, will make a fine faucet. You are now ready to fill your barrel with nice clean rainwater that will automatically serve you from every refreshing shower of rain.

It is not necessary to go to the expense of metal guttering. Two six-inch boards nailed together to catch the falling water at the eaves of the roof will do, and four six-inch boards will, when nailed together, make the box or tubing to conduct the water from the gutter down to the barrel.

As you draw out water to drink, or wash up the floor and fittings of the beehouse, which should be kept clean, the water will be replenished by the very first rain while you may be at home, or at another yard miles away.

In the hot summer time here in Alabama the water will get slightly warm in the middle of the day; but by the next morning it will be cool and sweet again. One barrel like this will make you a spend-thrift with water—always ready just when and where you need it most. In fact, that barrel will supply a small family with nice wholesome drinking-water.

Letohatchie, Ala. W. N. Randolph.

Origin of Foul Brood.

On page 670, Sept. 1, Mr. J. E. Hand says that bees wintered out in the open with good stores of pure honey (not sugar syrup) will be strong and healthy. He implies that sugar syrup and indoor wintering tend to European foul brood, paralysis, spring dwindling, etc.; and later, on page 671, he says cellar wintering frequently terminates in European foul brood. I am of the opinion that he is slightly mixed here. Black bees are supposed to be very easy victims of foul brood, and Italians more resistant. Blacks have been left to follow nature's plan or to the care(?) of the box-hive beekeeper, while some strains of Italians have been cellar wintered for generations. Why is foul brood worse in the tropics than in the more temperate climes? There the bees winter outdoors, have flights nearly every day, and in many tropical localities the honey harvest is on in our winter.

I am with the editor when he says it is no harder on bees to evaporate sugar syrup than to do the same work on natural nectar.

Foul brood does not spring from dampness, bad air, etc., but from a germ, as all our chemists know.

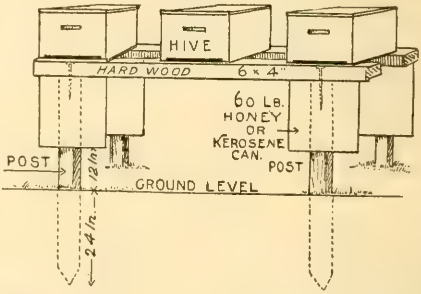
Georgetown, Del. Geo. W. Louder.

In the Wilds of Australia.

I agree with Wesley Foster's remarks, last paragraph, page 166, March 1, in every detail. A person has to turn to his tools at times; for instance, when a supply dealer has not been prompt. I have had to make frames and run wax out on a wet board as a substitute for foundation through the delay in shipment of supplies.

I have a good location for bees here. I have had a continuous honey-flow since last May up to this time (April, 1914), from several varieties of eucalypts, acacias, and other honey and pollen bearing plants. I purchased a colony of Italians which has increased to ten since last September, all on self-spacers, 10-frame L., full depth, and all storing in supers.

I do not know the buzz of an angry bee nor the hum of a robber. My apiary has a northern aspect, with a crescent-shaped ridge at the back, heavily timbered, thus protecting on east, south, and west.



With the exeception of settlers' blocks on the creek this part of the country is wild. Until a few months ago, wild horses (Brumbies) were running about here, but are all taken in hand now. There are varieties of acacia here, so thick in growth that a dog cannot bark in it. Most of the timber is ironbark, a splendid railroad timber, and large areas are reserved.

I am sending a sketch of a device to beat the ants where troublesome. I have found it good, but rather expensive, so I have decided to exterminate them at first hand to save further trouble.

The principle is that spiders take up their location in the tins, and the cobwebs prevent the first ants from finding the bees. Beat the first and you beat the lot. First 4 posts 4 ft. 2 inches long; 2 cross-pieces 12 ft. long, 6 inches wide, 4 inches thick; 4 petroleum-cans; tops to be cut out of cans to telescope over posts. Cross-pieces can be spiked on the tops of posts without leaving ant-holes. I have tried tar in cups around the posts; but the heat causes a skin to form on the tar in three or four days.

James Porter.

Brush Creek, Australia, April 24.

Coating for Metal on which Bees can Crawl.

Please tell your readers how to treat metal so that bees may be able to crawl out of a vessel made of tin or any other kind of metal. Last fall we had a hundred feeders made after the fashion of the Doolittle feeder, but we had them made of galvanized iron. Bees drown in them too easily. How can we treat the inside of the metal in such a way as to enable the bees to crawl out? How would it do to paint the inside, and sprinkle sand over the paint before it hardens. I have no doubt but that an article along this line will be appreciated by many beekeepers.

Mount Airy, N. C., May 7. J. E. Johnson.

[It is rather difficult to put a durable coating on metal which will enable bees to crawl up as easily as they do on wood. On this account sheet metal, which, besides being somewhat more expensive than wood for making a feeder after the pattern of the Doolittle division-board feeder, is also somewhat objectionable on account of the bees drowning, as you say. Possibly painting the inside of the feeders, and then dusting over with clean sand, would be all right. But there is just a bare chance that the paint, especially when not thoroughly dried and seasoned, would be objectionable to the bees. Dipping the feeders in hot paraffine would enable the bees to crawl out much better, although it might be wise to dust on some sand before the paraffine has cooled.

You might find that you would have to use a wooden float in each feeder to prevent drowning, as this is sometimes an advantage given with the wooden feeder, though not often.—Ed.]

What Associations Can Do.

The heavy rains of last spring almost wiped out sweet clover as compared with former years. Two years ago our association supplied each of our members with 5 lbs. of clover seed for sowing on spare places and spots that had been bare of any useful vegetation. This year the practice was continued. Each good standing member receives 5 lbs. of seed to sow this spring. We are at a loss to see one association outside of ours advocating the preservation of forage.

In Europe the beekeepers' associations have spent a great deal of money in supplying the residents of cities and towns with honey-producing trees and plants, especially in Germany and Austria-Hungary. Honey in general is better known and more appreciated by the average citizen than in this country, and prices are better by far than here. Their conventions are visited, mostly by men who have the welfare of the bee more at heart than any other item of the industry. Why is this? Because the first item considered in this country is "The money there is in it;" hence the many failures. I speak from experience. I have yet to find the man who thinks he would like to keep bees who hasn't asked the question, "Is there money in it?"

Cincinnati, O., Feb. 8. Henry Reddert.

How I Stimulate Breeding.

In March and April I uncap the sealed honey of one or two frames, and then put them next to the combs having brood—*i. e.*, on the two sides of the brood-nest proper. Within a few days these combs are emptied, and the queen lays in them. On another visit, in about seven to twelve days, I repeat the same process until all of the sealed honey is consumed. About the beginning of May (if the colony is to be run for the production of honey) I put on the super, and I commence feeding at the entrance in the Simplicity feeder, with light sugar syrup. Just before dark, every evening and early in the morning, I remove the feeders.

Feeding in this way is, of course, elaborate, but gives the best result for breeding and for drawing out the comb foundation in the sections so as to have them ready before the honey-flow commences. In this way the bees more profitably occupy their time during the honey-flow, collecting and filling the prepared combs instead of losing most valuable time in building combs.

I have closely observed that feeding continuously day and night keeps the bees indoors, while feeding in the night only renders the bees very energetic and zealous; therefore I do not allow my bees to enjoy artificial food during the day.

M. G. Dervishian.

Nicosia, Island of Cyprus, Sept. 5.

Bumble-bee Shown the Door.

While watching my bees one day I saw a large bumble-bee enter the hive, evidently an unwelcome guest with suspicious designs. After a short time he reappeared, escorted by two guards, each firmly holding one of his hind legs. They allowed him to use his free legs with good speed till they reached the edge of the platform, where they held their prisoner fast while he pleaded for liberty, and (we believe) promised never again to enter the sacred precincts of their home. Then they released him and he flew away unharmed—a wiser and (no doubt) a better bumble-bee.

Miller's Falls, Mass. C. A. Shearer.

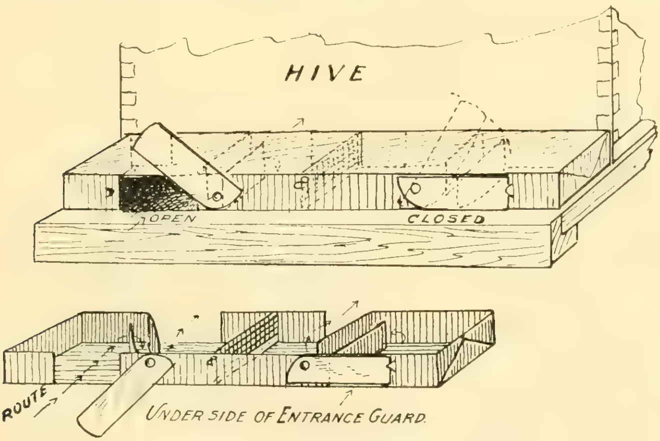
Colony with Young Queen Swarms.

The advice usually given to prevent swarming is to keep the colonies supplied with a young queen of the current season. May 23 one of my rousing colonies superseded the queen, the virgin queen hatching on that day. I had previously exchanged combs of hatching brood for sheets of foundation to prevent swarming, and did so again. July 31 the new queen was clipped and the ten-frame brood-chamber reversed back to front, which was on the deep side of a Danzenbaker bottom-board. A full super body was on top all the time, as there were not bees enough for two supers. Aug. 15 the colony swarmed with a lot of queen-cells left. There was no honey in the brood-chamber at all, and no honey in the super at all. They were getting only enough for breeding. The only extracting had been on May 26. This was my only swarm, although my other colonies had queens from one to two years.

I had another rousing colony which gradually decreased in population and brood until the bees died of old age, and the queen laid only very sparingly, but still the bees did not supersede her, so I had to kill her right away to introduce a new one.

TOADS IN THE APIARY.

In order to prevent toads eating the bees in the apiary I had to fence the whole apiary with wire netting, ¾-inch mesh, properly fixed in the ground, and 18 inches in height. The toads do climb the fence, and are found inside the next day. They do not get stung by the bees—no chance; and if they did, they are invulnerable. The bees are caught with the greatest dexterity in the air



Metal entrance-guard used by J. S. Kavanagh, Fort Thomas, Ky., to prevent robbing of weak colonies.

by the toads with their furred tongue when they are not swept away from the alighting-board.

BEES SUFFOCATING OVER SOLID ESCAPE-BOARD.

I like very much the idea of the ventilated escape-board with screen instead of wood. This year I had an illustration of the danger of the common bee-escape used where there is no protection from the sun. Two hours after setting the escape, I accidentally had to raise one of the supers. I found that the bees were suffocating from lack of ventilation before passing through the escape. With wire screen there would be no danger. I have noticed, also, that the next morning the combs are cold instead of warm, as they would be if the heat from below were passing up. C. M. CARMONA.

San Rafael, Trinidad, B. W. I., Sept. 6.

[There are many instances of colonies swarming, even though the queens are less than a year old; but as a rule the colonies with young queens are less likely to swarm than are those with older queens.—ED.]

From the Old Country, Cumberland.

I have never seen an article from the Old Country in GLEANINGS, and I wonder if you can spare a corner for a few lines from a Cumberland lass. My husband has been interested in bees for several years, but recently he got another "bee in his bonnet," and was married; so, of course, his bees had to follow him to his new place of abode.

We brought the colonies by train, one at a time, then had to carry them about two miles. Though very slow work we had the satisfaction of knowing that hardly a bee was damaged, and the following morning they were working away quite at home.

Being in business in the city, my husband has only his evenings and one afternoon a week off duty, but now, being an apprentice, I am able to help him a little in making frames, wiring and fixing foundation, and looking out for swarms. I also help while he is manipulating. I can spot the queen almost as soon as he can. Fortunately we have had only one swarm among our home colonies; and, needless to say, I was most excited (not being used to bees). As they were not likely to settle I had to resort to the sprayer; and, not having gained sufficient courage to secure the swarm myself, I had to seek the aid of a neighbor. However, by next year I hope to be more proficient. Bees, I consider, are a most fascinating study as well as a profitable hobby. Nearly all my reading at present is confined to bee literature—my husband, fortunately, having a good many books on the subject.

We have six home colonies, and seven about six miles distant, including American and British Goldens, Italians, and Black.

A HAPPY WIFE.

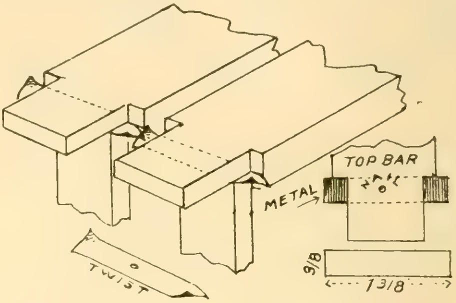
The Smoke Method of Introducing Queens.

On page 388, May 15, Major Shallard practically asks if any one adopted the above method of introducing queens before 1885, the year he commenced to do so. I may state that I adopted the method in 1882 and in 1883 and afterward, when queen-rearing on an extensive scale, I rarely introduced in any other way unless the conditions were very unfavorable. Both virgin and laying queens were introduced by smoking, and the losses were, if any thing, less than by caging. Many a morning I have run in 20 or 30 queens by smoking after removing the originals to send away by mail—all finished in seven or eight minutes. The smoke method is by no means new, as will be seen by turning to some of the bee-journals for the '80's. I have been surprised to see so much made of it of late, as though it were a recent discovery.

Auckland, N. Z., June 24. I. HOPKINS.

Simple Spacing Device.

The illustration shows my frame-spacing device. My idea is to bend *each* end of the metal one-eighth of a full turn. The reason for giving only one end a twist is that with a quarter turn the metal sometimes tears partly off.



My frames have narrow ends as shown in the drawing. I like them thus, as it gives a better grip for the fingers.

Sacramento, Cal., Nov. 12. A. D. MUNGER.

Buying vs. Making Foundation.

On page 371, May 15, Arthur C. Miller says that he buys his foundation for five cents a sheet, and is thereby saved the trouble of making it. Now, that is all right for him; but I have to pay 65 cts. a pound for brood foundation; and after paying freight and having a lot broken besides, I find that it costs me about $1.00 a pound for full sheets of foundation in good condition. Since I prefer to use full sheets, I believe that in my circumstances I am better off by making my own.

Albany, Vt. J. M. CARTER.

New York, Not Massachusetts.

In the Oct. 15th issue you have the address at the end of my article on swamp bee-pasture, p. 812, as Mayfield, Mass. It should be Mayfield, N. Y.

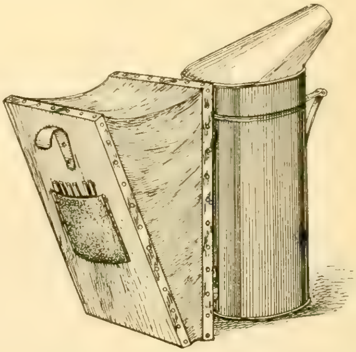
My bees are all ready for winter. Sugar is high, and some will not feed on this account. Bees will have to be fed here more or less—some half.

Mayfield, N. Y., Oct. 24. G. W. HAINES.

Four Swarms from One Colony.

I had one colony that gave four swarms in eight days, and kept strong in bees all through. They were all good-sized swarms.

Waterford, Ct. F. M. JACQUES.



Handy place for matches. Suggested by G. E. Leavitt, Chattanooga, Tenn.

A. I. Root OUR HOMES Editor

For God so loved the world.—JOHN 3:16.

Be fruitful, and multiply, and replenish the earth, 7:7.
and subdue it.—GEN. 1:28.

Knock, and it shall be opened unto you.—MATT.

Somewhere about the year 1840, or perhaps as late as 1845, a few miles away from the log house in the woods where I was born there used to be a salt-spring. I think they called it a "deer-lick" in olden times, as the deer came there to lick the salt water; and I believe that, in early days before salt for table and domestic use was prepared in great factories, the people used to boil the salt water to get salt for the home around the region of Liverpool, Medina Co., Ohio. This salt-water spring was near Rocky River; and besides the salt spring a peculiar black-looking oil was found there on the water. It seemed to ooze out of the rock. The people saved it, and carried it around in bottles to cure rheumatism. In this form it was generally called Seneca oil. I believe that was about all the use they made of it until the oil excitement broke out in Pennsylvania in 1859. This was when I was 19 years old; and as I had been eager all through my boyhood to hunt up and utilize God's gifts (although I did not enumerate them in that way in that early day) I caught on to the craze of digging for oil, or drilling for it. The people near that old salt-spring became excited also, and a couple of young tinners in the town of Liverpool made some tubing of heavy tin, put down a well back of their tinshop, and got quite a little oil.* Very soon it began to be discovered that it could be used instead of tallow candles for lighting our homes. I was so busy in my shop as a watch-repairer about that time that I could not well get away except on Sunday (or at least I thought I could not). I had no money to hire a horse and buggy, so I started off one Sunday morning and walked ten miles to Liverpool and the same distance back, at night. I am glad to recall, however, that I came home with a troubled conscience. I knew what my good mother would say about such a Sunday tramp. On that trip I saw a great wooden tub or tank filled with salt water and a little oil on the surface which they pumped into it with a steam-engine. Please remember that gasoline-engines were unknown at that time. Those early wells were drilled down perhaps one or two hundred feet, and we thought then that it was a great thing to be able to go *so far* into mother Earth. Quite a little gas came up with the oil, but it was allowed to pass off into the air or to make a beacon light at night. It seems strange that people at that early day did not seem to think it was worth any thing of any account. Well, these shallow wells after a brief time gave out, or they did not get enough oil to pay for pumping. Later on, by going down a thousand feet or more they got gas and oil, and quite an excitement resulted. Just now, fifty years more or later, we find by going two or three *thousand* feet, instead of only two or three hundred, the supply of oil and gas seems almost inexhaustible. See the clipping below from the *Plain Dealer* in regard to some recent developments not far from that first start in Liverpool.

> In July there were eighty wells yielding gas in quantities of from 500,000 to 10,000,000 cubic feet a day.
>
> Gas was first struck in the district last January when a gusher well yielding 10,700,000 cubic feet a day was sunk on the property of J. L. and H. Stadler underneath the Harvard-Denison bridge.
>
> The boom commenced immediately and wells yielding as much as 4,000,000 cubic feet a day sprang into existence on adjoining properties.

Now, friends, I need not undertake to tell you what has come in fifty years from the discovery of oil and gas in the bowels of old mother Earth. I *could* not tell you, even if I *would*, for I am not well enough informed. I *do* know, however, that oil and gas are now found more or less almost all over the whole face of old mother Earth. The first excitement was mainly in Pennsylvania. Later the Virginia oil-fields threatened to equal and even did eclipse Pennsylvania. Then California discovered they had an abundance of oil to run locomotives, to make good roads, and who can tell what else? Then away across the waters (where they seem to have forgotten the oil craze, and gone into a craze for killing each other), great developments ensued, especially in Russia.

Reader, have you ever stopped to think what the world would be now if it had not been for that discovery of oil and gas? There would have been no millionaires like

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* In GLEANINGS for Nov. 1 I gave you a picture of the old windmill when it was first started. Well, in the description I failed to mention that it not only printed GLEANINGS but it worked a home-made drill for drilling for gas and oil. In the basement of the factory that held the windmill I put down a hole; and when I got tired of working the drill by hand I arranged a piece of mechanism that would pull the drill up a certain distance and let it drop; and that old home-made drill is down in old mother Earth a hundred feet or more at this present date. It got stuck in the rock; and with my limited experience and crude implements I did not succeed in pulling it out.

Rockefeller, or not so many of them. Without gasoline the gasoline-engines would have been impossible or next to impossible; and automobiles could not have been launched and so nicely perfected, without the aid of gasoline. Why, gasoline is getting to be such a commodity now that it is *almost* as plentiful as water. A few years ago, if by some carelessness your gasoline gave out from your automobile you might have to walk miles on foot and carry back a gallon of gasoline; but just now, not only every city but almost every little town or four corners with a country store has a sign out with the legend "Gasoline for Sale." And many of these little shops will pump the gasoline right into your automobile, having it measured automatically, and start you off in less time than it would take to water your horse in olden times. The farmer, instead of laboriously hauling up logs and spending a great part of his time winters in "chopping wood," does his cooking and heating by gasoline. In fact, we have come to a point where there is almost no place to put chips, kindling, wood, or shavings. Our houses are warmed and sometimes lighted, and the cooking done by gas or gasoline. The good old times are gone; and while the demand on the housekeeper and the homemaker are in some respects more than what they used to be, woman's work is lightened in a thousand ways, and we are learning useful lessons every day—yes, learning them at a tremendous rate too. May God give us grace, while we recall the manifold advantages of the present time and contrast them with the past, to turn our eyes finally to him in praise and thanksgiving for what our eyes have seen.

On page 780, Oct. 1, I spoke about a little scrap of paper torn out of some Bible that happened to be down among the disorderly scraps of leather I happened to turn up with my foot while I absent-mindedly pushed my foot among the scraps at exactly the time I mentally made my appeal, "Lord, help." Since I have mentioned the incident our readers have referred to it by letter. The question is, did that bit of paper get down among that leather by pure accident? Let me go over it a little more fully:

The shoemaker was an ungodly man. He never had a Bible of any sort in his dirty shop. It is not likely that anybody would bring a Bible there; and it is not often here in America that a Bible gets torn up. I do not think I have ever seen a torn or mutilated Bible more than once or twice in my life. People do not use *Bibles* for waste paper, or at least not very often; and yet there was a piece of a leaf of the Bible found among those scraps of leather. It contained just the words I so much needed, and no more. Skeptics will say it just "*happened*" to be there. I grant you this *might* be; but it happened to be on the precise *spot* on that littered floor where my toe was resting. Furthermore, the very instant, the very day of the week, the very hour of the day—in fact, at the very minute, and we might almost say the very second, I uttered that prayer, "Lord, help!" the toe of my shoe, by *another* strange coincidence, pushed away the leather so that a glimpse of the paper met my gaze as I breathed in distress (a distress for souls going down to ruin) the brief but intensely uttered (mentally, of course) call for help. I submit to the readers of GLEANINGS if it is likely all that just "happened." The old friend who declared that that scrap of the Bible was enough to save the world is now (Oct. 21) near death's door.* He remembers the incident, and I have had several talks with him about it.

Well, friends, what has this to do with the oil business? Why do I drag it in here just now? Does it require any great stretch of imagination to believe that the oil and gas hidden away down in the earth were put there ages ago by the loving Father, to be hunted up and brought to the surface for the children he loves, when humanity has got to the point where we could not well get along without it?

"Knock, and it shall be opened unto you."

I have been laughed at sometimes because I claimed this text refers to science and civilization as well as to spiritual things. The oil was *there* all the time, like the scrap of paper among the leather; but the oil came to light when humanity was ripe for it, just as the scrap of paper came to light when I prayed earnestly for help. Oil and gas have blessed humanity. I have not yet heard that the use of gasoline or kerosene has been prostituted to the carrying-on of the European war except in the use of gasoline for the aeroplane; and I hope something may happen to prevent using it to drop bombs, especially where the bombs are dropped on hospitals devoted to the care of the wounded, as has happened already.

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* To-day, Oct. 22, I learn that the old friend of whom I have been speaking died at almost the very time I was dictating the sentence above. Less than a week ago I had quite a talk with him. He admitted that his end was near; but when I suggested that the dear Savior was ready and anxious to take him by the hand and pilot him across the dark river, he had been so many years holding back that it seemed hard work to accept the words of promise I repeated to him over and over. God only knows the outcome; yet I feel happy to think that I made that visit, and did my best to make it plain to him.

While I write (Oct. 21) the papers tell us the Germans are massing their zeppelins to drop bombs on London. I mentioned the matter to Ernest a few minutes ago. He said something like this:

"Father, if they undertake to do *that,* there will be such a world-wide protest that the Germans will be obliged to stop."

God grant that this may be true.

There used to be a class of people who claimed (or pretended to claim) that there is no God; and just one man, a beekeeper too, made a remark to the effect that he did not see any particular need of a God.* I believe that this doctrine is now abandoned, or at least largely. All mankind now acknowledges, and I hope bows down in reverence to the God of creation. There are, however, quite a few who still maintain that it is a myth that God *cares* for us. They cannot believe that God loves us individually. A poor friend once said to me in jail that it would be a happy moment for him when he could believe that God loved or had any regard for his poor self. It was years ago, and I cannot remember now the outcome; but that single expression I have used among our texts, "For God so loved the world," ought to bring happiness and joy to every son of humanity.

In closing let me make a little summary. During my comparatively brief span of life I have seen many wonderful things invented. I can remember when tallow candles or a greasy lamp filled with lard oil were the only means of lighting our homes. Many an evening have I spent reading by a tallow candle. I remember the snuffers sometimes used to get lost by the careless children. Some of the other youngsters would drop the greasy, smutty contents out of the snuffers. It was my privilege to see oil brought out of the ground, and to see it go through the different stages of refining; to see utilized the waste product running out into the creeks and rivers until it got to be a great and dangerous nuisance. I have lived to see these waste products utilized in a thousand different ways, while the doctors' shelves now contain more medicines made from the refuse from the refinings than from almost any other source. One invention or discovery seems to pave the way for another. The Wright brothers could not have invented their flying-machine without gasoline. Gasoline-engines are now not only moving great factories, but they are supplying strength to the farmers and to the farmers' wives. They are moving little electric-light plants to have the farmer's house and barn lighted in a way that lamps and lanterns could *never* do. During the past fifty years the whole wide world has roused up and come to life. I have not only been permitted to be present at the birth-time of oil and gas, but I might almost say I have seen electricity in a like manner ushered into this world of ours, and grow to the mighty proportions of the present day. There has been talk about the "good old times," and there *were* some good things in olden times that I am sorry to see being dropped; but who is there whose eyes rest on these pages who would want to be transplanted to the times of fifty years ago? You might say in a thoughtless way you would like to try it; but, my friends, you would get homesick in less than 24 hours. With the wonderfully good things that have come to light from the hands of the kind and loving Father, I am sorry Satan also has managed to wedge himself in here and there. I have been trying to think that it is perhaps well for us that we *do* have to fight evil—at least in certain ways; but may God help me, as I close this Home paper, to have faith to believe some "good things" will in some way come out in the end from fighting the liquor-traffic that has so long oppressed us, and from the terrible war that is now raging without any particular symptom of letting up at the time I close this paper.

Just a word more before closing. Mrs. Root's mother died over in England when Mrs. Root was but a little child—only two years old. As photography was not known at that time she has no picture of her good mother. Well, I would give a hundred dollars for just a *picture* of Mrs.Root's mother, but it cannot be furnished. Once more: I would give another hundred dollars to hear that mother talk to the children she was obliged to leave. But the phonograph and dictaphone and these things that are so common now had not then been invented. I think I saw about the first telegraphic wires that were put up in Ohio. The boys at school made fun of me when I said that men could talk through the wire; but now they talk without *any* wire, clear across the ocean. I might go on telling about the things that have been discovered and developed during my brief lifetime.

Now, then, friends, have we at this stage explored and invented every thing? is there no more discovery to be brought out like getting oil and gas out of the bowels of the earth, like chaining the lightning to do our bidding by driving our cars, making fast the reflections from a looking-glass, and holding human speech for future generations? Has the loving Father got to the *end* of his wonderful gifts to the children he loves? You know one of our several texts says, "For God so loved the world," etc. What have we given *him* in return for all his loving kindness—for these great and wonderful gifts that he is heaping upon us? Some writer in the *Sunday School Times* recently said, "The man who is at war with *God* will soon be at *war* with his fellow-men." We know that, because we have seen it. Now, is it not also true that the *nation* that is at war with God will sooner or later be at war with other *nations?* Some other writer in that same periodical said there is not a genuine "Christian nation" on the face of the earth; and the more I think of it, the more I am afraid it is true. We might cite our own United States with the motto on our coins, "In God we trust;" but how about being in partnership with the brewers and distillers in furnishing liquor? Away back in the sixth chapter of Genesis we read that it "repented God" that he had made man. Back in my childhood my grandfather on my mother's side, I am sorry to say, was a skeptic. In commenting on this passage I remember hearing him say that one might almost think that God "lay awake nights" planning how he might best *manage* his rebellious children. Some of you will make a start at the above, and say it is awfully irreverent; but yet does it not remind us of a great truth that we might overlook? Would it be any thing *so very strange* if that loving Father *should* pause and consider whether it were well to keep passing out these great and wonderful gifts to mankind, especially while they are intent on fighting and killing each other as they are now doing in the Old World? And may God help us when we take into consideration the greed and graft and bribery and trickery all the while going on in our own country. Have we here in America very much to boast of? Is there not a greater need than *ever before* of a loving Savior and Redeemer to call us to order and to make us ashamed of ourselves?

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* The fool hath said in his heart, There is no God. —PSALM 14:1.

THANKING GOD FOR GOOD NEIGHBORS.

It affords me great pleasure to find the following in *Collier's Weekly* for Oct. 17:

> ### COUSIN CANADA.
>
> As the war rages on, and we find ourselves pinched by it, we can and do thank God for good neighbors. The most wonderful thing in North American life is the fact that *for four or five thousand miles our frontier is Canada's frontier; and not only is there no fort upon it, but there is no place where any one in either nation wants a fort.* They are people one is glad to have next door, the Canadians. Somtimes a Taft or a Clark says something that makes us blush for him; but the nice thing about these people is, they understand what a loose tongue is, and pay very little attention to it. A good deal used to be said about annexing Canada; and once in a while a man comes back from there so full of admiration that he wants to annex the United States to Canada instanter; but most of us feel—and we sincerely hope Canada can share the feeling—that just being neighbors is the best thing for both of us. We have the same problems in the main, and we are glad to have Canada show how she thinks they should be worked out. We have a good deal of common property in the lakes and rivers which lie between our shore and hers. It is a really beautiful thing to think of—in the war-torn autumn of 1914—that we have never had a serious difference about this common property. This is a good time to vow that we never will. Our Lady of the Snows is not so cold as her title might lead one to think. She is distinctly our sort—and we hope she won't mind our saying so. The frontier is an imaginary line only. Thoughts are the true bond of friendship. Let us draw closer and closer to Canada in thought. Let us seek, nationally and individually, to foster the relations which make us thank God for Canada as a neighbor.

I want to call particular attention to the sentence in italics in the above. I did not know—at least I did not think of it until my attention was called to the above—that there are no forts between us and Canada; and may God grant that there never may be; and, furthermore, it is my prayer that forts, fortifications, and men-of-war may speedily disappear from the face of the earth. I know there are many people who are ready to say amen to the above, because I see it voiced more or less in almost every periodical.

TOY PISTOLS AND OTHER TOYS IN IMITATION OF IMPLEMENTS OF WAR.

Dear Brother Root:—I have just read Our Homes for Sept. 15. I think it is fine. I hope you may some time write on the toy-pistol curse and other seemingly innocent practices which excite wrong desires and lead to serious evil.

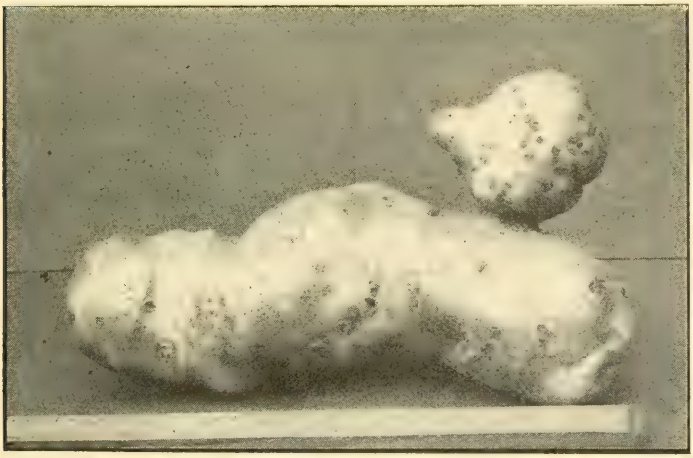
Sulphur, Okla. CHAS. R. HILL.

Amen to what you suggest, my good brother. I have had the matter in mind. Now let us, each and all, especially the Sunday-schools of our land as well as the day schools, discourage by every means in our power having any thing for the children that would suggest war—tin soldiers, toy pistols, toy swords, and, perhaps, even toy drums. Let us encourage not only here in America, but in the whole wide world, a hatred for war and warlike implements. There has been quite a start made for a safe and sane 4th of July. Let this safe and sane organization rule out *guns* and *cannons*. Let us, each and all, in view of the awful lessons God is sending us from away across the waters, do every thing we can to teach and practice "peace on earth and good will to men" instead of war and bloodshed.

HIGH-PRESSURE GARDENING

TAKING CHANCES, ETC., IN GROWING GARDEN STUFF.

We have had an unusual fall here in the North, dear friends, and I fear that many of us have not remembered to thank God for nice growing weather clear up to the 28th day of October. Yes, we had nice beans and tomatoes almost up to the first of November. It is true there have been some slight frosts, but none to hurt truck on high ground like our own. When the early peas and early potatoes began to go off and be out of the way, I planted Bantam corn and suggested to the children that I was going to have Early Golden Bantam corn wherever there was a vacant place. I kept on so late that they laughed about my getting roasting ears away up in October. Then I got half a peck of white marrowfat beans; and after I stopped planting corn I put in beans for a couple of weeks later. Well, the corn did all right and gave us the nicest golden-yellow ears I think I ever ate; and when we had more than we could use I enjoyed the fun of carrying them around to the neighbors. Well, most of them had become tired of garden stuff along in October, so there was not much call for the big white shell beans; but just as the frost threatened I went all over the garden with a good stout man, and had him pull all the beans he could find, with plump yellow pods. They were piled on a wheelbarrow and run under a shed; and as the temperature goes up and the sun comes out again, we are going to spread them out to dry, and I shall have quite a crop of "home-grown" white beans.



An Early Ohio potato weighing 2 lbs. 2 oz., and measuring 9½ inches in length, grown under the irrigation system illustrated in our issue for Oct. 1.

Some of you may suggest that you have no time to take risks; and, to tell the truth, we had several rows of beans almost ripe when the frost came, and you might say that it is a waste of time and seed to take such chances. Not so. You all know how much it is worth to have a crop of clover or vetch to turn under; or almost any other legume. Well, now, a dense row of white beans loaded with pods, even if they are only fit for snap beans, will be worth as much as a big dressing of stable manure. You try it and see. I am going to put some choice crops next season where those green beans were turned under. Our dasheens made a splendid growth clear up to the date I have mentioned, and we got them in just as the freeze came (for it was a freeze, and not a frost). There was no frost visible, but there was a skim of ice on the water-trough next morning. Such a freeze does not do nearly as much damage as a frost.

The sesame plant I have spoken about several times did not mature any good seed here in Ohio. Probably it will have to be grown further south. The plants were covered with pods when the frost took them. Our cantaloup melons also kept ripening clear up to the date mentioned. We had also beautiful egg-plants that had to be gathered just before the freeze. One big plant contained eight good-sized eggs.

The irrigation apparatus I illustrated and mentioned in our Oct. 1st issue, of course helped greatly. In fact, it kept our Early Ohio potatoes growing briskly clear up to the freeze. When I first installed the apparatus a part of the vines had died down; but plenty of water during a warm period started the rest, and they grew amazingly. We give a picture of one specimen.

Of course, some of the stuff started up with the water, made a second growth, and the small potato that shows in the picture was, I presume, the outcome of the irrigation. The big potato, of course, increased in length and size; and under the spur of good weather for the potatoes, and plenty of water, the little one was an offshoot.

Just now every thing of any value has been gathered from the ground. Our big team turned under all the trash, weeds, etc., that had sprung up after the crops were off, and they are well out of sight.

To-day, Oct. 29, we were planning to put in rye so as to have the ground constantly occupied, but this morning it was rainy. As it is getting to be rather late for the rye for a winter crop, our good teamster suggested that he *could* sow rye broadcast and harrow it in, even if there was a drizzly rain, and now it *is* all in, ready for winter. You see where we practice " high-pressure gardening " we expect to have some sort of green crop occupying the ground every month of the year, winter as well as summer. Last year we had terrific rains that washed quite a little of the fertile soil down into Champion Brook. If the rye gets a little start it will hold the soil and prevent wash; and in order to avoid this damaging wash, as soon as the weather will permit the big team is going to plow a furrow down through the middle of the garden and off toward the creek; and as the ground slopes on both sides just a little toward this open ditch, I do not think we shall have much wash, for the ground is pretty thoroughly underdrained besides the open ditch.

Besides the stuff mentioned above, we had quite a crop of Hubbard squashes to divide around among the children. And there is another little squash called Table Queen, the seed of which was furnished by a good friend, C. H. Peterson, Garden City, Minn. It is as good as a choice Hubbard squash. But they are little bits of squashes, and a good deal earlier than the Hubbard. When baked on the " half shell," and eaten with butter, salt, and pepper, they are certainly delicious.

Last, but not least, we had two nice hills of helianti. (See pages 317, April 15, and advertising page 21, May 15.) These came from two tubers sent by the Burgess Seed Co. The plant when in full bloom very much resembles the artichoke mentioned that my mother grew years ago. See page 317 as above. The yellow flowers are really little sunflowers. They are covered by bees when in full bloom, and bear little seeds resembling sunflower seeds. The small tubers are on the end of the rootlets that run out two feet or more in every direction. While the plant was growing thriftily I dug a few of these little tubers about as large as one of your fingers and about as long. When cooked very much as we cook asparagus, at the first taste I had one of my " happy surprises," and became quite enthusiastic over the helianti. I sent and got a leaf from John Lewis Childs' catalog, and prepared to give the plant a big write-up; and I would do so *yet,* if it were not for one circumstance. One of the girls in our office who helps to fold up GLEANINGS very opportunely remembered what I said about my " mother's artichokes;" and she asked me if I would not like a few of the real *old-fashioned* " artichokes." Now, *here* is where the trouble with helianti comes in. Mrs. Root cooked the artichokes exactly as she did the helianti, and we have had both kinds for dinner twice; and I am obliged to confess that the artichokes, cooked exactly like the helianti, are just as good; and I am greatly surprised that the artichoke has never been made use of before for a wholesome and delicious vegetable to take the place of Irish potatoes.* One trouble with both artichoke and helianti, as I understand it, is that neither can be dug and kept in the cellar like potatoes. In fact, John Lewis Childs cautioned me in regard to the matter. Here is what he says about it:

> Helianti may be left in the ground in the North the same as artichoke. Helianti will do well in Florida or in any Southern State. It does not keep well out of the ground, so it should be dug as wanted; and in the North, when you wish it in the winter when the ground is frozen it should be dug and put in earth in the cellar. It dries up if left out of earth, and does not grow after it is dried up, and is not good for food. You should tell your readers that the helianti must be planted as soon as received, as they do not keep well out of the ground. JOHN LEWIS CHILDS.
>
> Floral Park, N. Y., Oct. 1.

One of our good friends, a reader of GLEANINGS, away off in California, is very enthusiastic about the helianti, and he says it yields out there *a half more* than potatoes. He has sent me some very nice samples which are much larger than we get here. His address is John G. Gretzinger, Hynes, Cal.

One great objection to the helianti, as I see it at present, is that the tubers are so small and so scattering. You would have to dig over carefully a square yard or more to get all the tubers. In our Medina clay soil it is quite a task to dig a single hill. The artichokes are so much larger it would be a comparatively easy matter to dig them. John Lewis Childs gives the following as to their food value:

> Dr. Koch, a well-known German food specialist,

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* Is it not another case of sweet clover—the plant that was kicked and cursed and pronounced a noxious weed for years and years, but which is now rivaling even alfalfa that has in times past blest and is now blessing the world?

gives the following figures as units of food value: Helianti, 540.5; green peas, 465.0; turnips, 133.0; potatoes, 126.8.

He also offers to furnish pink-tubered helianti, supposed to be the best, three tubers for 10 cts., or less in quantities. He also offers seed at 15 cts. a package, and says they will bloom the first season and make a lot of tubers.

DASHEEN BULBS FOR PLANTING.

In order to answer many questions I give below two advertisements from the *Florida Grower.*

DASHEENS.—$2.50 bushel; others ask $4. Cassava, Kudzu, Para Grass, Ribbon Cane. POET EDEN FARM, Riverview, Fla.

SEED DASHEENS for sale, $2.50 per bushel, f. o. b. C. J. BARRETT, grower, Crystal Springs, Fla.

I confess the above is free advertising; but under the circumstances it will save me answering questions. I shall have, perhaps, thirty to forty bushels of dasheen tubers of my own growing, but they are not for sale. In fact, so long as I am writing up the garden department of GLEANINGS I shall have *nothing to sell.* Should I undertake to sell the things I write up or write about, you might accuse me of having an "ax to grind." Whatever I choose to *give* or offer to the readers of GLEANINGS, I suppose no one will object to. We are planning, as I have told you, to give every paid-up subscriber for one year or more 1 lb. of dasheen tubers. But said subscriber must find out from his postmaster what the postage will be from Bradentown, Fla., to his own place, and then he can send the amount here to Medina, O., when he makes his application for the pound of tubers. Three grains of the Rainbow corn will also be included if you mention it.

In addition to the above we have just received an advertisement reading as follows:

If you want to make sure of an 8-lb. "Trinidad dasheen-seed" shipment in time for spring planting, send me $1.00 now. M. LEIDERSDORF, Daytona, Fla.

See advertising columns.

I have a nice increase of dasheens. I have tried them out and find both bulb and stock delicious. Won't you give us a little advice again as to the methods of preparing for the table, and especially as to care in northern climates, for next summer's planting? Will the old bulb keep over winter? Shall we pack in sand, dry or moist?

S. W. MORRISON, M. D.

Embreeville, Pa., Oct. 19.

My good friend, it is a very simple matter to prepare dasheens for the table. You may recall that the Government bulletin advised washing the bulbs in water containing a little baking soda; and if there is any tendency to acridity, first boil the dasheen in a little soda water and pour the water off. Then add fresh water and stew until the bulbs are soft. Add butter and milk, or cream, so as to make a sort of soup like oysters and mushrooms. Then put in oyster crackers as you would for oysters. This is our favorite way of cooking them; and you can cut up the whole plant, and stew with tubers. When they are matured, bake them exactly as you would potatoes. This refers to the underground part only. As to whether the old bulb will keep over winter here in the North, I cannot answer. As they keep without any trouble down in Florida, if kept where they can have plenty of air, and spread out on a screen of fine-mesh poultry-netting, we have no trouble.

Some I grew a year ago and kept in a cellar here in Ohio spoiled because I did not spread them out and give them plenty of air. A few of the tubers, however, that did not get soft were planted, and they grew all right. My impression is that, if packed in dry sand and kept considerably above the freezing-point, they can be kept over all winter all right. In fact, seedsmen keep bulbs of caladium and elephant ears (which are of the same family) without any trouble, year after year. They must, however, be kept in a place sufficiently dry so that they will not get damp and moldy.

SWEET-CLOVER SEED—OVER $1400 IN CASH FOR JUST ONE WAGONLOAD.

One of my good friends sent me the following, clipped from the Omaha *Daily News* of Oct. 5:

FARMERS GET RICH ON SWEET CLOVER.

HASTINGS, NEB., Oct. 5.—Progressive farmers in the North Platte district are making small fortunes off sweet clover hay and seed crops, for which there is an enormous demand, according to A. J. Mills, who has just returned from there.

He said every spare bushel of seed was readily disposed of at $14, and that he witnessed the sale of one load for which a little over $1400 cash was paid. He saw another load sold for $1050.

A farmer with whom Mr. Mills visited rented an eighty-acre tract for $160. From this field the man sold over $2000 worth of sweet-clover seed, to say nothing of the hay feed left from the straw.

Mr. Mills probably farms more land near Hastings than any other farmer in the county.

He says at first horses and cattle refuse to eat the clover plant, once styled as a pest and obnoxious weed; but that after they once get a taste the stock will pass up the choicest alfalfa for it.

Mr. Calvert informs me that the price of sweet-clover seed has been steadily advancing; and just now, Oct. 27, the price is away up. This whole matter of sweet clover illustrates how farmers and others who do not keep posted may get into a notion that one of God's best and most precious *gifts* is an *enemy* to mankind. This comes about because so few of the farming people keep in touch with the experiment stations now to be found, I think, in every State in the Union. Our experiment stations from first to last have called sweet clover a valuable legume. It is valuable for stock, and it enriches the land like other clovers, no matter where it grows. The demand for seed has been so great that the price has gone up until we cannot sell it now for less than 22 cts. per lb. in lots of 100 lbs.

SWEET CLOVER AS A PREPARATION FOR GROWING SUGAR BEETS.

Mr. F. S. Hardy, of Fruitland, Wyo., is making us a visit. When he first went on to his land in Wyoming the agent told him he was very sorry to be obliged to admit that sweet clover was making considerable headway on some parts of the piece of land. Out there they grow alfalfa largely. Well, our friend bought some alfalfa seed that turned out afterward to contain quite a per cent of sweet-clover seed. At first he was a good deal worried; but he soon discovered that the sweet clover was greedily eaten by his stock, and seemed to be worth fully as much as alfalfa. Another thing: The sweet clover on that peculiar alkali soil not only grows away up in the air higher than you can reach, but it makes roots almost as large as a man's wrist at the surface of the ground; and these great roots he has found down at a depth of 4 feet or more. Well, their soil lacks humus more than almost any thing else. These tremendous sweet-clover roots furnish humus. Now, that is not all. As some of the political speakers say (especially of late), I want to say to you, "Now, just listen." Fruitland, Wyoming, is in the region of the sugar-beet industry. Since the present war broke out, inducements to produce our own sugar are greater than ever before. Well, Mr. Hardy not only had a great crop of sugar beets where the sweet clover had been growing—a crop that took the first premium at the State Fair—but the sugar content of these beets was about 19 per cent, or almost one-fifth of the raw beets was *real sugar* itself. In fact, I have tasted sugar beets that seemed to be pretty near up to the above mark; and it begins to transpire that this high per cent of sugar is found only where there has been a rank growth of sweet clover to turn under. I wonder what the enemies of sweet clover (if there are any now) have got to say when they come to face the above facts.

THE "AERIAL" POTATOES.

I see in reading **Gleanings** that you are quite a gardener. I am sending you a few potatoes that are of a very queer growth. When digging, there are no potatoes under ground, but about a dozen grow on stalks above ground. The larger one, to me, resembles a toad. They are such a curiosity I want you to see them.

South Euclid, Ohio. **Mrs. Welch.**

My good friend, the Department of Agriculture has recently put out a bulletin describing what you mention. They give it the name of Aerial potato, and I think they call it a disease. I have noticed it more or less for years past, but supposed it was only a sort of freak such as we often see among vegetables. Down in Florida I had one hill that produced as much as a dozen of these potatoes above ground with few or none below. As I had put some very heavy fertilizer on one of the papayas near by I supposed it was the effect of the fertilizer, but I may have been mistaken. At first I thought I would plant these potatoes that grew up in the air; but when the Department suggested it was a disease I changed my mind. I have at times seen similar potatoes growing on the outside of old potatoes that happened to be neglected in the cellar where there was a little light.

LIQUOR ADVERTISEMENTS; MAGAZINES AND OTHER PERIODICALS THAT DO NOT ACCEPT THEM.

Some time ago we gave a brief list of periodicals rejecting liquor advertisements; and now a friend has submitted a page of the *Amethyst*, giving a list of the papers and magazines of this sort. Lack of space prevents our giving the complete list; but let me say that in round numbers it comprises toward *500* papers and about *50 magazines.* I scarcely need tell you that this list includes the most prominent and respectable periodicals of our nation; and it begins to look very much as if the periodicals that accept these pernicious and damaging advertisements will soon begin to be ashamed of themselves if they are not already.

By the way, let me mention a little incident. Last winter, in discussing this matter with my good neighbor Rood (down in Florida) he said his boy was great on baseball, and had subscribed to the Chicago *Record-Herald* especially on account of its baseball news. His father made some objection, saying he did not like to see a paper in his home containing such glaring whisky advertisements; but the boy maintained there was no other daily that could take the place of the *Record-Herald.* Just a few days later the boy came in, swinging his hat, saying the *Herald* had announced that it would print no more whisky advertisements, etc. So you see that even our great *dailies* are *growing* in grace and wisdom.

Gleanings in Bee Culture

VOL. XLII. DEC. 1, 1914. NO. 23.

Special Numbers
for 1915

There was a time when we were fearful that our readers were not appreciating the special numbers, our fear in this respect being prompted, perhaps, by some adverse criticism of the plan. However, we are convinced that the very large majority are in favor of having certain subjects discussed in a full and comprehensive manner, nearly a whole issue of GLEANINGS being devoted to the subject in question. Accordingly we are making a selection of subjects for 1915, taking without exception subjects that have been suggested by our readers themselves.

Feb. 1.—EXPERIENCES OF PROMINENT BEEKEEPERS. In this number we shall present an array of autobiographies, so to speak, from a large number of well-known beekeepers who will tell how they increased their business from a small number of colonies to a large number. In other words, how they progressed from an amateur to a professional. These men will discuss methods of making increase, buying bees, prices paid, etc.

April 1.—QUINBY NUMBER. One of the most successful exponents of modern beekeeping, and one whose pioneer work paved the way for beekeepers for all time to come, is Moses Quinby. Mr. L. C. Root, a son-in-law of Mr. Quinby, is going to furnish a number of interesting points in regard to the life and experience of Mr. Quinby never before made public, together with illustrations of the old home, etc. In this number we shall present a good many of Mr. Quinby's views on different subjects connected with beekeeping, some of which beekeepers are still debating.

August 1.—NEW AND OLD HONEY PLANTS. It has been a long time since any subject mentioned in GLEANINGS has been received with such enthusiasm as the subject of bee-botany. We are constantly learning of new honey-plants in various localities that are proving valuable, and at the same time there are many old honey-plants which beginners or beekeepers in other localities do not know. In this number we hope to start on a subject that shall not end for some time. In fact, GLEANINGS expects to devote more space to the consideration of honey-plants than ever before—not only in this one issue, but in many of the issues for 1915 as well.

October 1.—HONEY FOR COOKING AND FOR THE TABLE; HONEY AS A REMEDY. People who do not customarily use honey often show a woeful lack of knowledge concerning its use on the table, as well as in cooking. New users of honey are quite apt to store it in a refrigerator, or some other damp cool place, and when it goes upon the table it is anything but inviting in appearance. In this number, which will be full of information that the producer of honey can use to good advantage in disposing of his crop, we shall present a number of articles on the food value of honey—on different ways of serving honey, and on the use of honey in cooking. Included with this latter will be a number of new recipes that have been found especially valuable.

A great many physicians are using honey in their practice, recommending it to their patients for various purposes. We shall devote considerable space in this number to the use of honey as a remedy. While we may not show pictures to prove the comparative results "before and after taking," we believe that this number will serve to furnish the material to be used to convince any consumer that honey is a healthful food, and that he cannot afford to get along without it.

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio

A. I. ROOT, Editor Home Department. J. T. CALVERT, Business Mgr.
H. H. ROOT, Managing Editor E. R. ROOT, Editor A. L. BOYDEN, Advertising Manager.

Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLII. DECEMBER 1, 1914 NO. 23

EDITORIALS

Our Cover Picture

IN many northern localities the past season, where clover proved almost a total failure, many fall flowers were unusually luxurious, especially goldenrod and aster. There are many varieties of each, and especially of the aster, some of the varieties having a very different appearance from others better known.

Near one of our swamp apiaries in September there were large tracts of unused ground with an almost unbroken stand of goldenrod. Our cover picture shows one of these. This particular tract stretched out for nearly a quarter of a mile. It was early in the morning when the picture was taken; and when we first stopped there was not a breath of air stirring, every stalk being absolutely motionless. By the time we were ready to "press the button," however, a slight breeze had sprung up, causing the blurred appearance of some of the blossoms.

Winter Setting in Early

THIS fall throughout the country, up till about the 10th of November, the weather was exceedingly mild. Bees had been gathering pollen and nectar until very late. But old dame Nature seems to have a fashion of balancing up the weather. If it is very warm at one period, that period is almost sure to be followed by an extreme of cold, and so in this case. Two or three weeks ago the thermometer dropped to 10 and 20 above zero, followed by high winds. Thousands of colonies all over the United States were out on their summer stands in single-walled hives, waiting to go into the cellars. Many beekeepers, however, wished they had their bees inside, Dr. Miller among the number. They had been hoping against hope that they might have one more flight so they could cleanse themselves, after which they would be in fine condition to go into the cellar. But this warm spell has not materialized, or it has not up to to-day, Nov. 24, although the temperature is tending to rise a little.

This premature cold spell of two or three weeks is going to be hard on the bees that are in single-walled hives that are to be put in the cellar. When the first warm fly day comes we shall give them a mid-winter flight, and then set them in again. Many beekeepers do not believe this pays; but in our locality it certainly does pay. Hives that have been spotted with dysentery in the cellar after one of these warm mid-winter flights have repeatedly come out in the spring in fine condition. Of course, where a colony is badly affected with dysentery a good flight for only one day does not help much. The only remedy for such colonies is *continuous* warm weather outdoors.

More Disastrous Results Follow Shipping Honey by Parcel Post

C. F. BUCHER, of Littlestown, Pa., has forwarded to us a clipping from a local paper published in Maryland regarding a shipment of honey by parcel post which thoroughly "messed up" the contents of a large mail-sack, to the disgust of the postmaster and many of the patrons.

We feel, as we have said before, that the beekeeper or the producer should not make *experiments* of this kind without knowing what has been done by others. It is downright foolishness for any one to wrap up a section of honey, or a bottle of honey, for that matter, in a few thicknesses of paper, or a flimsy pasteboard box, and send it through the mails. Such a package may go safely the first trip or the second, but sooner or later it is going to get broken and the honey will be smeared over the contents of the whole mail-sack. If this careless experimenting is not stopped, beekeepers are likely to suffer a hardship owing to the danger of honey in any kind of retainer being ruled out of the mails absolutely.

When we get a piece of comb containing

a suspicious sample of brood together with considerable honey all sticky and dripping because the sender merely wrapped it up in a few thicknesses of newspaper, we feel like—well, we won't say what we feel like doing. Sending such a package through the mails is almost criminal carelessness. Such samples should not be sent to us any way, but to Dr. Phillips, Bureau of Entomology, Department of Agriculture, Washington, D. C.

Natural Foods Rich in Sugar

In Dr. Wiley's department in *Good Housekeeping* for May appears a paragraph under the heading "Foods Rich in Sugar" As it puts honey at the head of the list of natural foods richest in sugar content we are glad to reproduce it for our readers. This, coming as it does from one of the greatest authorities in the world on foods, means something. The whole article, in fact, is worth reading, as is every thing else from Dr. Wiley. Here is what is said:

> Among the natural foods which contain notable quantities of sugar may be mentioned the following: beets, sweet potatoes, turnips, radishes, carrots, and other root crops. Indeed, all the common vegetable foods consumed by man contain notable quantities of sugar. The sugar-beet yields from 10 to 18 per cent, and the sweet potato has from 4 to 7 per cent. The natural food richest in sugar content, however, is honey. Nearly all the solid content of honey is composed of sugars: namely, levulose and dextrose in practically equal proportions, in which are usually mixed small quantities of ordinary sugar. Honey is the type of natural sugar foods. Prepared foods which are largely sugars include, besides the ordinary sugar of commerce, molasses, syrups of all kinds, and confections. Among the confections are included the sugar cakes of various kinds, which are such a common component of desserts, and candies of every description.

Feeding Sugar to Make Colonies; a Further Explanation from Mr. Selzer

Referring to our experiments in the matter of making increase at swamps or nectar from natural sources, and making increase by feeding sugar syrup, in our Oct. 15th issue, page 794, Mr. Selser writes, making a further explanation as follows:

> In Siftings, October 15, page 794, you are quite correct in reference to a dollar's worth of sugar building up three-frame nuclei to full colonies with full sheets of foundation, ready for the honey harvest; with all consumed and no surplus; but it costs $2.23 per colony to carry them up with stores to a surplus sufficient for winter.
>
> The procedure was this: In the Root Co.'s Salem apiary, directly after the June honey-flow, with all surplus taken off, we divided eight-frame hives (populous, of course) into three three-frame nuclei, putting two frames on the original stand with an empty frame of drawn comb. This was in the first part of July, or right after the Fourth; and by the 25th of August, when we have a big swamp fall flow at this point, the bees were in shape to stop feeding and continue on the natural flow; but this year spoken of was a failure, so we continued feeding until frost, and carried some five hundred colonies through to spring with a minimum loss of about five per cent.
>
> We bought sugar that year in ten-barrel lots at a time, at four cents, less grocer's discount. Of course, with sugar at five cents the cost in dollars and cents would be a little more. We do not remember just what sugar we used; but we figure the cost in actual dollars and cents, so as to guide us in our future calculations.
>
> Philadelphia, Pa., Oct. 30. Wm. A. Selser.

Mr. Selser is entirely correct. On the other hand, if we buy a colony of bees in July or August, we probably would have to feed that colony in order to put it in shape for winter. The point we wish to make in this connection is that one can, with sugar at normal prices, if he understands the art of *slow* feeding, make up a colony of bees from three-frame nuclei in July with a dollar's worth of sugar. As the nucleus will be worth anywhere from $2.00 to $4.00, it will make the colony net us, not including the labor, from $3.00 to $5.00 by Sept. 1; or including labor, 50 cents more. This will not inlcude the hives nor extra feeding for winter if there is no fall pasturage. One reason why we went to the swamps was to get the honey for nothing; but, as will be seen from report elsewhere, the fed colonies came out ahead this year as the fall pasturage did not hold out in one location at least as we had expected.

Swamp Beekeeeping vs. Feeding for Increase in and about Medina—a Final Report

Last summer we had sold our bees down so low that it became necessary to make increase. Two plans were pursued to get more bees. One was, to leave some of the bees at the original outyards, and feed up with cheap Porto Rican honey after the general honey-flow was over. The other was, to move some yards to locations near big swamps. There was one big swamp, it will be remembered, of something like 1000 acres, about 30 miles northeast of us. From there were other swamps nearer at hand where we placed other bees. The nearby swamps did better than those far away, and the increase was satisfactory. The Richey yard, near the thousand-acre swamp, did not make as good increase as some of the other yards; but it drew out nearly a thousand combs from full sheets. One reason they went backward was, we drew on them heavily for bees in pound packages in July. The other reason was, that the bees had to fly so far to pasture that they wore themselves out. After they had made a good increase up to the middle of September they went backward on account of these long flights. Before we knew it they had become considerably weakened. It was these bees in particular that we had to send to Virgina, as mentioned elsewhere.

A yard of two-frame nuclei that were fed upon Porto Rican honey at the beginning of August built up to fine strong colonies for winter, with stores enough to carry them through to spring. The cost of the honey and the time amounted to $1.50 per colony.* The increase at the swamps cost nothing for feed; but the furthest yard, thirty or forty miles away, had to stand an expense of truck-hauling of ten cents a mile. That would be about $10.00 for 50 colonies, or 20 cents apiece. Where there was plenty of fall pasturage the advantage was in favor of the swamp beekeeping. Where the pasturage was lacking or fell short, the advantage was in favor of the fed colonies.

The experiment will be tried next season, both in feeding and hauling bees to the swamps. But feeding is a comparatively sure proposition, while hauling to the swamps, while generally cheaper for a given increase, is less certain of good results.

Wax-rendering-service Station; Massachusetts to Help Her Beekeepers in the Rendering of Old Combs

A NEW service station for Massachusetts beekeepers has recently been announced by Dr. Burton N. Gates, Associate Professor of Beekeeping, Massachusetts Agricultural College. The College at Amherst has installed a steam-operated equipment which is showing high-percentage yields. For instance, one trial in rendering nineteen Langstroth combs gave approximately six pounds of wax.

Already considerable quantities of comb have been rendered, and arrangement is made for much more; yet the capacity of the presses is several hundred pounds a day. We suggest that those having work to be done write to Dr. Gates, requesting this service, whereupon he will send full particulars and an application blank to be filled out and returned before the wax is shipped. Dr. Gates especially requests that beekeepers refrain from shipping materials previous to notifying him. It should also be emphasized that it is not desirable to furnish comb containing honey, not alone from the standpoint of leakage in transportation, but because it hinders efficient rendering. The service is offered at a nominal cost, merely covering expenses, a charge of five cents per pound of rendered product. The beekeeper, however, is expected to pay transportation charges, which are slight.

We believe this idea of a central-service station to be a step in the right direction toward the handling of apicultural products. Moreover, from the success of this project already, we are certain that beekeepers appreciate the opportunity afforded them. Dr. Gates informs us also that from time to time, as circumstances and facilities permit, the wax-working operations will be improved and extended—not merely comb rendered into commercial wax, but commercial wax clarified and prepared for various markets and their demands.

We would remind the beekeepers that there is a neat income from scraps of comb, scrapings, and burr-comb. This margin is especially profitable when the toilsome and disagreeable work of rendering can be avoided at a slight expense. Consider also the short distance of transportation as well as the additional yield of wax possible in comparison with the small percentage obtained by the usual laborious home process. Odds and ends of combs should no longer be used to feed the bee-moths. "Save the pieces" and have them extracted at the central station.

We would suggest that old comb may best be stored by tamping it solidly into a tight barrel or box. The more compact and harder it is tamped, the less likely moths are to injure it. Take a piece of two-by-four or other heavy tamp, and pound down the scrap as it is thrown into the barrel. The moths will not trouble wax stored in this way, especially if the material is allowed to freeze once during the winter. It is surprising what an accumulation may be made even in a small apiary. In the larger apiary it will well repay the beekeeper to sort his comb into two grades—bright and dark. Especially handsome wax is obtained from cappings or bright new comb.

We commend the new service station to the attention of beekeepers. Savings in wax will help meet your next-year's foundation bill.

The Net-weight Law as Applied to the Comb-honey Business; Can We Get the Ruling Changed so that the Section will be Weighed in with the Combs?

WE have received one decided protest from a subscriber, asking why we did not complain to the powers that be against the operation of the national net-weight law as applied to comb honey, and at the same time show up the inconsistency of applying the ruling one way in weighing in the wrapping around hams and applying the ruling in another way in eliminating the wood or section around comb honey. We have replied by saying that it would be about as useless to oppose the ruling of the Committee in the Bureau of Chemistry regarding the operation of the net-weight law as it would be to butt our head up against a stone wall. As a matter of fact we did file our protest, but it did no good. Perhaps there would be no objection in showing up the inconsistency, or what appears to be such, of applying the ruling one way with regard to one food product and an entirely different way in regard to another. While it is true the Committee did not *make* the net-weight law, that Committee, until the courts pass on it, has interpreted its scope. In the mean time it would be a little dangerous for most of us to go contrary to its interpretation, even though there is an apparent inconsistency in the way the ruling has been applied. By complying we show good faith on our part.

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* These fed colonies also gathered some natural stores from goldenrod and aster.

No matter what the outcome, we do not think the operation of the net-weight law will entail any great hardship. If we can only make up our minds to comply with it (and we do not see but we shall have to, whether we wish to or not), we shall find that its effect will be no great hardship. That the law as interpreted by the Committee is causing some inconvenience there can be no doubt. There must necessarily be a readjustment, and it will take time to get that under way.

In the mean time GLEANINGS has counseled its readers to "get into the band-wagon," as we see no other alternative except fine and imprisonment. When Uncle Sam begins to make arrests (which he doubtless will do later on) we will wake up when it is too late, and our idea all along has been that it would be better to comply with the ruling until the courts set it aside, and that is not impossible.

The R. A. Burnett Co., of Chicago, are probably among the largest dealers in comb honey in the United States. This company does not complain about the law, but rather of the bungling way in which it is being carried into effect. Here is what Mr. R. A. Burnett says:

> The marking of weights on the wood frame is causing retailers no end of trouble. To begin with, the apiarist does not succeed in having them clearly stamped in all instances. The majority of them use too much ink, and it blots so that a "3" and an "8" are almost indistinguishable, as are some of the other figures. Then when they pack the honey in cases they put heavy and light weights in the same case, so that the retailer buying a case of honey by weight finds there are sections running from 10 oz. to 19 oz. in the same case. Such a case is now before us.
>
> We reason that the beekeeper thought it unnecessary to put frames of equal weight in a case, for the reason they were marked on the wood; but when the marking is blurred and the average clerk does not note the difference in a frame that is well filled and one that is not, it makes errors both for and against all parties concerned. There has been so much of that this fall that our salesmen deplore the marking on said frames. They are often incorrect, but mostly they are understamped as to weight. The remedy, in our mind, is to grade the sections before casing, so that there would not be over an ounce of difference in any of the sections. This could be done at the time of weighing by having a place on the bench for the different weights to be set, so that when they were cased it would not be necessary to do any more handling than was occasioned by the first placing. Of course, all changes of an arbitrary nature cause many people to make innocent mistakes which result in trouble of a rather serious nature in many instances.
>
> Chicago, Ill., Nov. 5. R. A. BURNETT.

Producers and dealers alike should be careful not to use an ink-pad that is too wet. Use a common blotter, and absorb the surplus moisture before using the stamp.

By all means sort and grade honey according to weight. We are doing it right along, and find nothing difficult about it. Said the foreman of our honey department, Mr. Gayer, "The net-weight law is causing us no inconvenience worth mentioning." The reason of this is because every section is graded and marked according to its weight. Each section of a certain weight, or within an ounce of a certain weight, is put in a pile by itself, after which the several piles are cased. Any producer or dealer who will put honey of different weights in the same case, and try to market it, will soon find out his mistake. If he continues such foolishness he will have to quit the comb-honey business.

It is an intolerable nuisance to have the honey improperly marked, and then all mixed up in one case. Producers and dealers may rest assured that the buyer will go elsewhere rather than to run any risk.

The Push-in-the-comb-cage Method of Introducing, again

SOME two or three years ago, notably on pages 554 and 761 for GLEANINGS, 1911, and again, pages 762 for 1912, there was considerable discussion over the method of introducing a queen by liberating her on a comb and then immediately shutting her in on a small area of one of the combs under a hollow square of wire cloth, the wire cloth being pushed down into the comb clear to the midrib. The idea of this method of introducing was to give the queen immediate access to honey in the comb, impart to her the odor of the comb, and at the same time afford her an opportunity to lay eggs prior to her release. An egg-laying queen is much more easily introduced than one just taken from the mail-sacks; and this method has the advantage that either the owner or the bees themselves can release the queen. It involved the principle of the old Peet cage of 30 years ago that was so universally successful. It was revived in later years by various people, notably by the late W. Z. Hutchinson. The plan is described in his work, "Advanced Bee Culture."

We very seriously considered the advisability of substituting this method of introducing in all our mailing-cages; but we dropped it for the time being, as the smoke method, introduced by Mr. Arthur C. Miller, seemed simpler and was just as sure of results. But quite a few have failed in making the Miller method a success, either because the directions were not carefully followed or because the method will not meet all conditions. Among the number was E. J. Ladd, connected with the Portland Seed Co., Portland, Oregon. Some considerable correspondence between him and ourselves arose over different methods of introducing. In two of his late letters he stated that he had had excellent results with the caged-comb plan. The last letter from him will speak for itself.

This year's experience has proven to us that it is far from safe to trust bees to release caged queens from the ordinary mailing-cage. In some instances, and with some colonies, the bees were so savage to get at the new comers that they actually fought each other in their scramble for places, acting like demons, and this during a honey-flow and no robbing. In just such cases as this we succeeded by using the wire-cage method, but found it necessary to select old and tough combs for the purpose, as newer combs were torn to pieces in the mad frenzy of the bees in trying to cage the queen and attendants.

Cages made and used were about 4 x 5, and these were pushed down solid to the midrib of old and tough combs containing some honey and sometimes some brood; and when using such combs in no instance was a single bee released by the bees themselves. The frame containing the new queen was placed in the center of the hive and left there until the bees showed a disposition to accept the new comers. When this disposition was shown the cage was lifted and all inside at once became part of the colony. Frequently the queen lays while caged, and takes up her motherly duties on a larger scale when released.

We have given this method a severe test the past season, and with an apiary that acted more like demons than normal rational bees, and we are firm in our belief that this method is thoroughly dependable, even under adverse conditions. We also expect to use it when introducing valuable queens and in full colonies.

Memory carries me back to an early mailing and introducing cage that had a tin back that was drawn out when the cage was placed on a comb. There were two sharp tin strips fastened to the side of the cage, which were to be pushed through the comb and bent over, and these held the cage securely in place. The use of these cages was discontinued, chiefly for the reason that the tin gave a poor footing for the bees, and many queens were injured in the mails. The wire-cage method as used by us is really a modification of the old-time mailing-cage just described. And, by the way, I do not remember losing any queens when using that old-time cage.

By using the wire cage, success is assured; but it does take a little more time and patience. We know that hundreds of queens are lost annually in introducing by the mailing-cage method, leaving the releasing to the bees themselves. We also know that many purchasers in this vicinity believe all there is to do is to follow instructions as printed and leave them alone; then in a month or so wonder why the new bees don't show up, etc., implying the rascal who supplied the queen sent a mismated cull; and when the colony is examined by one who knows, and matters are explained as to the whys and wherefores —well, then there is a different story, and you can guess the rest.

We endorse the wire-cage method as being safe, practical, and dependable for introducing queens just as strongly as we do the use of rubber bands for rapid work in fastening combs when transferring, and of which we wrote you some time ago.

Portland, Ore., Nov. 2. E. J. LADD.

It may be we should consider whether or not we should adopt the plan even now; but one thing that makes us hesitate is the fear that the average beginner would not be able to get a queen transferred from the mailing-cage into the introducing-cage where there was honey, brood, and young bees.

We should be glad to get reports from some of our subscribers who may have tested the thing out during the past season. In the multitude of counselors there is wisdom.

* * *

Those Two Carloads of Bees from Medina to the Dismal Swamp, Va.; the Proposition of Trying to Make Queens Breed Both Summer and Winter

As pointed out on page 572, Aug. 1, the taking of carloads of bees south to Apalachicola, Fla., and bringing them back to Medina, after making increase, proved to be rather expensive. While we did not lose out on the proposition, we did not make very much money by it. The experiment, however, was watched narrowly by beekeepers all over the world; and from the standpoint of furnishing information through this journal it was worth all it cost. If it had not been for the fact that the bees were sold in colony, nucleus, and pound package form, we should have lost money; but as it was, we were able to clean up a little to the good; but it is very clear to us that no one whose only source of revenue would be honey would be able to move bees from the North to the extreme South in car lots, and make it a paying proposition. If one could secure big crops south as well as north it might pay; but the big-yield years are by no means common. One cannot very well run for increase and honey both at the same time. We were fairly successful, however, in making good increase and a fair crop of tupelo honey; but the weather conditions that year were against us.

The great expense item in moving bees to Florida is the dollar freight per colony down, and the same freight back. There was another unexpected item we ran across; Queens that have been laying well during the summer in the North are unfit to continue doing good work in the winter time in the South. Nature has so designed, apparently, that queens, like every thing else, must have periods of rest. No queen can lay heavily all summer and all winter. About all one can do is to change queens after getting south, putting in younger blood to take the place of the old worn-out stock. But what is one going to do with a lot of good tested queens that will be all right the following spring, and do another summer's work if they can only have a winter's rest? During the winter time there is but little demand for queens. The problem, therefore, of having queens breed winter and summer continuously is a serious one, and must be met when moving a carload of bees from the extreme North to the extreme South. As far as this goes we shall have the same problem in Virginia.

There was another drawback; and that was, bees in the region of Apalachicola could not always breed to advantage during the coldest months. They actually went backward during January and February. Mr. Marchant was greatly worried as to whether he would be able to make increase from a lot of weak colonies. He succeeded in making good increase after requeening some of the stock, and after some of the old queens had had a rest. If he could have had young queens in all the hives, his increase would have been much more satisfactory.

Another expense item was the cost of attendance during the time of year when weather conditions were not satisfactory.

This year, instead of going to Apalachicola with our bees we decided to go to the Dismal Swamp in Virginia. A comparison of climatic conditions, from the records of the Government, show that the advantage is slightly in favor of the Virginia locality, notwithstanding it is very much further north. The Gulf Stream has made a moderate climate of Great Britain, and for the same reason the coast of Virginia, where our bees are located, has practically the same temperature as Apalachicola, with less than half the freight to pay. We find, on further investigation, that the Dismal Swamp has practically all the flora, including the tupelos of northern Florida, with the addition of hundreds and hundreds of species of honey and pollen bearing plants that are not found in the vicinity of Apalachicola. These plants make it possible for bees to gather pollen or nectar practically every day in the year; and after a thorough investigation we came to the conclusion that the Dismal Swamp offers advantages in bee-breeding scarcely found elsewhere in the United States.

The freight rates to the Dismal Swamp region are less than one-half what they are to Apalachicola, with the great advantage of more days of good weather. Instead of engaging a high-priced man on the job throughout the winter we have placed our bees in charge of a local beekeeper until early spring comes on the latter part of February or first of March. Then we will send one of our most experienced queen-breeders and begin active increase and queen-rearing.

It will, therefore, be seen that the Dismal Swamp proposition involves less than half the freight-rate expense, less than half the labor expense, with the advantage of more days of pollen and nectar. We may not secure as much honey, but we shall have more days for flying probably.

One carload of bees started Oct. 20, and arrived in splendid condition. The car was packed in an entirely different way from the shipments of last fall to Apalachicola. We were able to get into a 36-foot car by the new way 320 colonies, and some 40 odd nuclei. By the old way of loading it crowded things to get in 250. Another carload started south Nov. 16. This last car was made up of nuclei hardly suitable for wintering in the North. If we build these up to nice strong colonies by spring we shall be satisfied.

Photos showing this method of loading on the new plan that involves less expense and less time in loading will be given a little later.

Reports will be made through these columns of the success or failure of this experiment from time to time. Of course the proposition may not pan out any better than the one in Florida last winter; but we shall certainly have a big advantage in a lower freight rate going and coming, with more nectar and pollen bearing plants following consecutively throughout almost the entire winter. More anon.

Dr. C. C. Miller STRAY STRAWS **Marengo, Ill.**

For a small apiary, what better uncapping-tank than that given by "The Outlaw," p. 866?

Grace Allen stands worthily with Eugene Secor as a poet for, if not among, beekeepers. Tell us about her.

Gleanings does well to endorse *Good Housekeeping.* Besides Dr. Wiley's valuable writings, it is worth while for its good and clean fiction Nowadays *clean* fiction is none too plentiful in magazines.

Major Shallard, sorry not to be in company with you, p. 857, but I have not used quilts for years. A cover having a ⅜-inch dead-air space, covered with zinc, serves for all covering of my hives.

T. P. Robinson seeks to explain the impulse that causes an aged worker to make her final exit from the hive. Is it certain there is any such "impulse"? Doesn't she try her best to get back, and then fail because lacking strength of wings?

It is not so well known as it should be, as pointed out by Dr. Neumann, *Deutsche Bienenzucht,* 165, that one of the things that make honey especially desirable is its content of enzym, which seems to aid digestion by its mere presence—none in sugar.

Dr. Phillips is innocent of the charge you make against him, Mr. Editor, p. 881. I laid that trap for you, and then told him to watch you walk into it, as I knew you would. I'm sure I would have walked into it, for it seemed absurd to think that when bees were packed close together they could have room to fan with their wings.

P. C. Chadwick deserves thanks for particulars of *failures* as to rearing queens in upper stories, p. 796. I think I was the first to report rearing a queen in an upper story, but my failures about agree with his. He has, however, given an advance step of value in rearing a queen above and below *at the same time.*

G. M. Doolittle gives it straight, p. 797, about bees working on same or nearly related flowers, but I remember one case in which I saw a bee fly back and forth upon unrelated flowers. I suspect that bees do not give a button for relationship, but have preferences; and when there are enough flowers of their first choice they will work on no others (and that's nearly always the case when there's a surplus); but when flowers are scarce enough they have no scruples about mixing.

The paragraph about feeding sugar, p. 794, is enlightening, even though Bro. Crane and Editor Root do not entirely agree. But in accepting the testimony that bees drew out six frames of foundation half way from a quart of syrup (1 lb. of sugar), I should want proof that nothing was yielding, for generally bees are gathering a little, and the slow feeding would give considerable time. [See answer to P. C. Chadwick in this issue, on a similar matter, in the department of Beekeeping in California.—Ed.]

The average beginner is deeply impressed with the idea that whatever his bees are doing in the way of brood-rearing may be doubled, or at least increased, by stimulative feeding. I don't think I have seen the time in 50 years when any amount of stimulative feeding would yield a cell more of brood in my apiary. How could it if the bees already have all the brood they can cover? Of course there are places, as mentioned by P. C. Chadwick, p. 885, where at times there are such breaks in pasturage as to stop the queen's laying, and then stimulative feeding pays big. But in general the notion that the queen should be whipped up in spring to lay more is all wrong, does no good, and may do harm. [We agree with you entirely. In queen-rearing, stimulative feeding is imperatively necessary. If there is not a steady light flow of nectar secretion we believe in stimulative feeding in the fall; but seldom can it be practiced in the spring to advantage.—Ed.]

Migratory beekeeping is an interesting thing in Europe. A great expanse of buckwheat within 12 miles of Vienna is in control of the beekeepers' association, to which members may take colonies certified as to health, paying 20 cents each for the care of skeps, and 24 cents for movable-frame hives, a skillful beekeeper being on hand day and night during buckwheat bloom (July 24 till about Sept. 8). For hiving swarms, 24 cents each.—*Bienen Vater,* 146. [We wonder how much migratory beekeeping has been practiced in and about Vienna during these troublous war times. Too bad, too bad, that the greed of the war-lords should involve millions of innocent ones, make children fatherless and motherless, and rob wives of husbands, and all for nothing. The poor and unfortunate are paying the penalty, and not the ruling classes, scarcely a man of whom has been even wounded.—Ed.]

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

Up to date (Nov. 11) we have had no "northers"—a really unusual condition for this time of year, for October rarely fails to give us one or more of these dreaded winds.

* * *

The second rain of the season has been falling the past two days, a gentle one at that; and while not heavy at all points (one of which is Redlands), in some places close to two inches has been recorded. With each of these storms the beekeepers' hopes go up, and visions of a good crop of honey appear. But many times those hopes are evaporated by the warm sunshine before more comes to wet the soil to a beneficial depth. Personally I am pessimistic as to a general crop next season. Some do not share my views, but I have yet to see two good successive flows of nectar from the sage. Some say we did not get a good flow this season; but to my mind the only reason was because our bees were not in condition to gather it from the beginning of the flow in surplus quantities. In some localities as much as a 350-pound average per colony has been reported, while a few miles distant the yield was extremely light. I, like all beekeepers, am living in hopes of a sage flow, but really I expect to see only the orange give surplus quantities in this locality.

* * *

I had the great pleasure of visiting a successful poultry-raiser a few days ago, who showed me through his entire plant. The marvel to me was not that he was successful, but rather the qualities that made his work a success. It was feeding-time when I arrived. He was just starting out with a large bucket of wheat, and I followed. Slowly and observingly he went from pen to pen, holding his bucket low as he traveled. Each chicken seemed to delight in getting a good mouthful before the grain was thrown in the scratching litter, though none acted as though they were starving by any means. I asked him if he did not know when he started that he had more grain than he would feed for the meal, to which he answered he did. "But," said he, "they like to pick out of the bucket, and I took enough so all of them could reach it easily." He loves the work, he loves his birds, each one receiving individual attention if needs be. I could not help comparing his care and his love for the work with that of those who are making a failure of the same business. Neither could I banish the thought that the comparison fits so aptly two classes of beekeepers, the first of whom *makes* success, while the other *may* succeed if circumstances favor him. Less bees and more individual attention will succeed better than more bees and less individual attention. And this is the rule in nearly all farming enterprises—proper attention at the right time. The failure to provide a super at the proper time may result in a colony swarming, and thus curtail its surplus production greatly; or failure to give sufficient room may cause the loss of several days in the midst of the heavy flow, when honey to the amount of from six to ten pounds per day might have been saved. Many are the details of the business that receive far too little attention, while the chief work seems to be to get off the honey and "whoop her up." After the "whoop" is over, then that "we should worry" feeling sets in and holds sway until the extractor hums again.

* * *

Mr. Editor, you say, page 794, that your foreman pointed out one colony which he thought would be a fair average that drew out six frames of foundation half way, on one quart of sugar syrup, half sugar and half water. I do not know what was the condition of the colony or other conditions at the time this test was being made; but when I read that assertion I am frank to say that I concluded your foreman did not know what he was talking about. Unless conditions were different from any under which I have tried this experiment I still think his estimate is entirely too small. I would have no worries about increasing, and sufficient comb room in the future if I could obtain results so favorable. [Our foreman wishes to state that, although he has never been accused of being very bright, yet the above-mentioned assertion is correct. The experiment was carried on during the most unfavorable circumstances. The colony in question was shaken from its combs in October. At that time asters were in bloom, and we expected they would gather sufficient to meet their needs. Instead of that, the next day it turned cool and a drizzling rain set in. When the colony was examined the second day after shaking, the bees were so nearly starved that they were beginning to drop to the bottom-board. One quart of sugar syrup, half sugar and half water, was immediately given them warm in a Boardman entrance feeder. The cap of this feeder had only two perforations, so

Continued on next page.

BEEKEEPING AMONG THE ROCKIES

Wesley Foster, Boulder, Colorado.

Sunday, November 8, the writer was in Delta County, near Crawford, at an elevation of about 7000 feet, and there was alfalfa in bloom; and but a short distance away was ice half an inch thick. The amount of bloom so late in the season was certainly a surprise to me.

* * *

COLORADO VOTED DRY.

The Prohibition amendment carried in Colorado by about 8000 majority. As it does not take effect till 1916 the liquor-dealers have an opportunity to close out their stocks and their business. There is about $20,000,000 a year spent for liquor in this State. This money will find its way into other channels, doubtless, and I believe that we need not fear the panic the liquor interests have promised us if Colorado went dry. Is it not rather significant that Colorado, Arizona, Washington, and Oregon (all western States) were the only ones that voted dry. Montana was the only State voting in favor of woman's suffrage. The western States seem to have the lead in measure of gallantry.

* * *

THE COST OF PRODUCING A SECTION OF HONEY.

Mr. Frank A. Gray asks Dr. Miller on page 776, October 1, what it costs to produce a section of honey. The Department of Agriculture, through the Bureau of Farm Management, is making considerable headway among the farmers to find out what it costs them to produce the various farm crops. It is no more difficult to ascertain the cost of producing a section of honey than of producing potatoes or wheat or hogs. I have read several agricultural bulletins that would help any beekeeper or farmer to solve these questions.

I know one system of apiaries where a fair crop in 1913 was harvested, and cost something over $1300 to produce 1000 cases of comb honey ready for market. It took about 500 colonies of bees, and in this amount nothing was put down for interest on the investment or pay for the owners who did the work. However, it paid for hired help, supplies, rent, horse feed, etc. I believe that beekeepers should be urged to begin keeping accurate accounts, so they may know where they stand. It is a rare farm that will pay the owner interest on the investment, allow for depreciation, repairs, etc., and pay the owner any thing but day wages. Most farmers simply get a job when they buy a farm, and the same is true in the majority of cases with beekeepers.

No. 1 sections cost me $5.00 a thousand, and foundation 60 cents a pound. I pay $1.25 a thousand for folding and putting two starters in each section and placing in the supers. My supers are wedged up when they are put on the auto to be taken to the outyards. Here is the approximate cost to me of a case of comb honey, leaving out the apiary management and all other charges.

24 sections in flat	$ .12
Extra-thin foundation for 24 sections	.12
Work putting up and startering 24 sections	.03
Work cutting foundation, dampening sections, waiting upon operator	.05
Cleaning 24 sections of honey	.05
Packing and stamping sections	.05
Cost of shipping-case in flat	.165
Cost of nailing up case	.01
Cost of nailing on cover, and stamping outside of case and piling in storage pile	.01
Cartage to car or depot	.01
	$0.58

This represents the cost of material and *shop labor* in producing a case of comb honey. This does not cover the large items of interest on investment, depreciation on outfit, rent of location, labor of apiarist, expense for horse of auto, help in the apiary, etc. At a later date I may offer something on these latter items, as it will pay for all of us to know what is put into our business and what we get out.

Concluded from previous page.

that the feed was taken very slowly. Very few bees went to the field during the period of 36 hours which it took them to consume the feed. About that time Mr. E. R. Root came into the yard, and his attention was called to the remarkable fact that they had drawn out six sheets of foundation about half way. It could hardly have been that they obtained feed from any other source. In addition to drawing out this foundation they would naturally consume some of it themselves, owing to their starved condition. Now, we will admit this one experiment with one colony does not prove any thing, and it may be that it would take more than one quart of such syrup to finish out the partly drawn comb. The actual cost of comb-building has not yet been clearly demonstrated.

This is an important question to beekeepers; and if nothing prevents carrying out our plans we expect to do considerable experimenting along that line another season. —G. H. R.]

J. L. Byer, NOTES FROM CANADA Mt. Joy, Ont.

I am just leaving to attend the annual convention of the O. B. K. A., which is being held in Toronto as usual. While the honey crop has been very small—a failure in most localities in the province—yet I am expecting a large crowd at our meeting. Beekeepers are, as a rule, a hopeful bunch, and place a lot of confidence in the prospects of "next year," even if actual conditions do not augur too well for their expectations to be realized.

* * *

THE DREADED ARMY WORM AN ENEMY OF CLOVER, AFTER ALL.

In GLEANINGS, page 745, October 1, it was stated that the dreaded army worm that was so much in evidence in many localities this past season would not attack clover. I am sorry to say that this is a mistake, as we have *prima facie* evidence to prove, by the fact that some of our best catches of red and alsike clover fields near us were absolutely denuded. After the worms had passed through the grain-fields in which the young clover was, not a thing could be seen on the bare ground but the droppings of the pest. Yes, they eat clover all right; and from what I can learn from our authorities it is one of their natural foods. [We are sorry to learn this, as we had been given to understand from what we supposed was good authority that the army worm did not attack the common clovers of the East. Perhaps this is another case of "locality," but we think not.—ED.]

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FINE WEATHER, AND PROSPECTS FOR GOOD WINTERING.

Unusually mild beautiful weather has been the rule throughout most of Ontario for the past few weeks; and up to to-day, Oct. 12, we have had very few days when little pollen has not come in from dandelion and other scattering bloom. Bees are going into winter quarters strong in young bees; and where stores are good and abundant, good wintering should be assured. Our own bees are very heavy, most of the stores here in York Co. being from buckwheat. The 320 colonies here have been fed 2000 pounds of granulated sugar, which is not a large amount for that number of bees.

Speaking of feeding naturally makes one think of feeders; and this reminds me that, judging from what many beekeepers write me, and coupled with our own experience, this would be a poor time for any one to invent a new kind of bee-feeder. Why? Simply because the common ten-pound friction-top honey-pail seems to be growing in favor above all other feeders. At our yard up north we have a number of Miller feeders—the kind I have always been in favor of in preference to any others. Last fall I was somwhat jarred to have my son report that the pails were away ahead of the other feeders; and this fall they used the Miller feeders hardly at all. Many write me a like experience; and after using more of them myself I am now inclined to think that the last feeders have been bought for our own use, and henceforth the common ever present pail will be used. In the first place they are easy to get, and cheap in price, as an extra lid can be bought and kept over, the pails being used for honey after feeding is done if desired. A few dozen extra lids cost but a trifle. They are easy to put over a colony inside of an empty super, and it is so easy to remove them when empty or partly empty. It is not easy to remove a partly emptied feeder of any other kind. There is no danger of robbing when using the pails if any ordinary precaution is taken; and it is easy to measure the feed and give one or more pails as required. No doubt other things in favor of the pails might be mentioned; but the ones given cover about all there is to the question of feeding in so far as I can think of at present

To-day (Nov. 9) we have had but two or three killing frosts, and on Oct. 28 we picked cucumbers in our garden. This will give an idea as to how mild the weather has been. More or less pollen came in during many days of October. Bees are, as a rule, going into winter quarters with large forces that were reared during buckwheat bloom; and where stores are plentiful good wintering should be expected. In some localities honey-dew was reported during the season, and I have an idea that a small amount was gathered in our York Co. apiaries. Wherever honey-dew is present in hives during winter the outcome is simply a guess with the odds in favor of disaster to the colony before spring, especially if the bees go too long without a flight.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

HOW SPEND THE WINTER EVENINGS; THE IMPORTANCE OF READING UP ON BEES.

"As the days are getting short now, and the bees are all ready for winter, I am trying to decide how the long winter evenings can be best spent to advance a young beekeeper's knowledge along the line of apiculture. Not having any definite ideas in this matter I am led to write Doolittle, asking if he will not give us something in his department along this line."

I take it that the writer of the above has chosen beekeeping as his pursuit in life, or, at least, expects to keep bees in connection with some other occupation to an extent sufficient to warrant posting up quite thoroughly in bee-lore. Having once chosen a pursuit in life, it behooves all to look after that pursuit with all diligence; and in no business engagement is this more imperative than when the culture of the bee is to be the occupation. In no way can this be done to better advantage than in reading the bee-literature of these times. Many times have I tried to get correspondents who were often asking questions to take a bee-paper or to send for a good book on bees, only to be met with certain excuses which went to show that these persons would not make a success in apiculture. A man who is not willing to put a few dollars into the apicultural reading of to-day shows by that very thing that he will not make a success with the bees; for if he has the right kind of love for the bee he will be eager to devour all the reading on this subject which he can get hold of. It is just this hungering and thirsting after knowledge regarding the practical part of beekeeping that insures success; and unless a person does so hunger and thirst after knowledge along some special line of the many industries of the world, he will never make any success of any thing.

I take it that our correspondent takes GLEANINGS. This is good; but just one bee-paper will hardly content an enthusiast. Take all the others if you possibly can. But before any of these, in importance to the beginner, is a good book on bees. Why I put the book or books first is that no one is fully prepared to understand the bee-papers till he is acquainted with the elementary principles of our pursuit. Lists and lists of questions are sent me, sometimes covering several sheets of paper, which I know would never have been asked had the writers had a good book on bees, and had they read the book understandingly. From these books and papers, during the winter evenings, the mind is to be stored with useful knowledge which can be put into practical use as soon as the season of 1915 opens. During the winter evenings of 1869 (that being the winter after I obtained my first colonies of bees) I procured and read Quinby's "Mysteries of Beekeeping," and the "Beekeeper's Text-book," and subscribed for the *American Bee Journal* and the *Beekeepers' Journal*, the two latter being all the papers devoted to bees there were published at that time. My first year of experience in beekeeping, by way of putting the things I had read in practice gave me an average of about 25 pounds of comb honey from each old colony I had in the spring. At the end of the fourth season I had chronicled 81 lbs. of comb honey as the average surplus from each colony in the spring. During these four years I had studied, read, and worked all my wakeful hours with the bees, having nothing but fun in doing it. Beekeeping has been a source of real pleasure and keen enjoyment during all the 45 years since I commenced. And besides this pleasure and enjoyment the bees have built me a home and given me the many comforts which I can now enjoy as the "sun is going down the western slope" of life. Very much of this success was brought about by those winter evenings when I began to read up on the subject.

But many of our practical beemen do not write for publication, and such men we can visit during the long winter evenings, as another help along the line of our qualification. Many a good thing have I gotten in this way—things which I had never seen in print, and which I could never have given to the world through the columns of GLEANINGS had I shut myself in *all* the winter evenings to the books and papers devoted to our pets.

Then we have our bee conventions which are held for the purpose of helping those who attend, in a special manner; and while the cost may be considerable, if we improve the time as we should we can learn more than enough to cover that cost in addition to the benefit which we derive socially.

All these things will be eagerly sought after if we have a natural qualification for the calling which we have chosen. If any person loves something more than he does to study beekeeping, in all probability such a one has mistaken his calling, and the fullest success will hardly crown his efforts.

GENERAL CORRESPONDENCE

A REMARKABLE DEMONSTRATION IN THE HANDLING OF BEES

BY EDWARD F. BIGELOW

For several years I have been making demonstrations in various parts of the country in the handling of bees without needing gloves, smoke, or other protective device. I have at last achieved the climax in such demonstrations. I do not know what more can be done. I regret that I have no photograph to show the demonstration. I would have engaged a photographer if I had known that it was going to be so remarkable.

In the early part of September I was instructor at the teachers' institute in Tell City, Indiana. In the course of my work I lectured on honeybees, and obtained a colony that a local beekeeper placed on the grounds near the schoolhouse. This was a fairly strong colony, though it had not been in the hive very long, having been taken as a swarm only three weeks previously. I made the usual demonstration after massing the teachers around the hive, opening it and requesting a few to hold frames and to study the movements of the bees. This was done in the forenoon. At noon intermission a few teachers requested me to repeat it, and to show them the frames, bees, eggs, and larvæ. I told them that the colony was gentle, and (with care) could be safely handled. But some who had known bees at home said that I had hypnotized those bees, or done something else to them, because I had shown a few of the teachers how to take them in their bare hands. They said that no one else could do that.

In the afternoon a large number of visitors were present at the regular session, and at the recess the same question was brought up, the teachers and the visitors requesting information about my method of hypnotizing those bees. What was the secret? I made this announcement: “After our regular afternoon session I will make the most remarkable demonstration ever made in this country. I will act by proxy, so that you cannot say that I do any thing to the bees, or that I have any peculiar influence over them.” From the visitors present I selected a small boy and a girl, neither of whom had had any experience with honeybees. I selected four tall young men, and requested them to remove their coats and roll the shirtsleeves to their shoulders. I asked for eight volunteers from among the young ladies who had low-necked dresses and bare arms. The ladies were requested to push their sleeves to their shoulders. I directed the entire company to go on the campus and arrange themselves in a circle around the hive. I should say that there were 350 people present. I stood back in the crowd and had the eight women arranged in a row near the hive and the four young men in front of them. I sent the little boy and the little girl to the hive to remove the cover and pass the frames to the young men, who were to search for the queen and to give that frame to me. I returned it to the hive. The other nine frames were divided among the four young men, most of them holding two, one holding three. They held these frames above the young ladies' heads, and at a signal of one, two, three, they shook the entire contents of that hive over the eight young ladies. I confess that my heart was in my mouth when I gave that signal. I thought at the very best that there was no great thing to be gained, and there would be a lot to lose if those young women were stung. I thought I should probably be carried home in the ambulance after the mob got done with me. But to my surprise, as well as to that of the spectators, although those young women were covered with honeybees, not one was stung. The air was black with flying bees. At first it seemed as if the entire colony would go off. The owner became alarmed, but I could assure him because I had the queen. I was confident that the bees would return to the hive. Bees covered the ground and the people. Gradually, however, they began to center toward the entrance of the hive, and the entire hive was coated with bees. The people took them up by the handfuls and did almost every thing conceivable with them.

I know of nothing left for me to do that is more daring and courageous than that, and of nothing to demonstrate more convincingly that bees, if properly handled, are not disposed to sting. If you know of any one else who has dared to shake eighty thousand honeybees over bare necks and bare arms until they look as if they have been peppered, I should like to know who did it. If you know of any “stunt,” as the boys would say, that could excel that as a public demonstration, please tell me what it is, and I may at some time raise enough courage to try it. The people at Tell City took the whole demonstration as a matter of fact, as if I were going from place to place and doing the same thing every week. You will agree with me that it was decidedly out of the ordinary. It will take me some time to accumulate courage enough to do it again. Perhaps I shall never make another such venture. I have frequently had people put their hands into a mass of bees, or take them up by the handful, and I have seen other demonstrators do similar things; but never before have I seen eight young women covered with bees, and the remarkable demonstration made by totally inexperienced persons. The prerequisite condition upon which I insisted was that the fourteen volunteers must be those who had never handled bees, and from homes where bees are not kept.

Arcadia, Sound Beach, Ct.

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SUCCESSFUL BEEKEEPING IN THE CITY

BY A CITY BEEKEEPER

To the veteran beekeeper an article about successful beekeeping in cities may appear like another case of carrying owls to Athens or coal to Newcastle. Yet GLEANINGS is not read by the veterans alone, but by an ever increasing number of novices or amateurs.

There was a time when you could not talk bees to me. Politely I listened to the enthusiastic recital of a friend concerning the mysteries of an apiary; but, like some of the seed in the parable, it fell by the wayside. Bees sting. It must be difficult to master all the details connected with their care. That settled it.

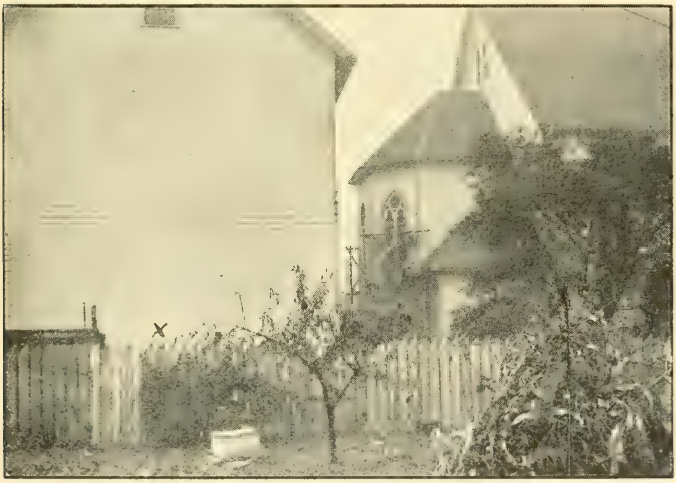

FIG. 1.—Bees kept in a crowded district in a city of 500,000. The building marked X is a school, and the bees are kept on this side.

But the time came, about six years ago, when I was tempted to try it. Well do I remember how doubtful I was of success, and how I felt as though it were hoping too much to expect any honey at all the first season. I may say now that I have been successful. During the first season I had three colonies, one of them a swarm of my original two colonies. It makes me smile now when I think of the feverish anxiety in hiving that first swarm. There was no reason for excitement, because the queen was clipped and I found her at once in front of the hive. (That, by the way, was the only swarm I had in four seasons.) In that first year I got 120 lbs. That wasn't much; but to me, who had expected nothing, it was an encouraging beginning. From four colonies I received 350 lbs. the following year. The year after, six colonies yielded 740.

In the fall of that year I found foul brood in my apiary. That nearly put a quietus on my enthusiasm. When I first found those sunken cells, so much dreaded by the beekeeper, and saw that ropy, foul-smelling stuff, which I had read so much about, I felt as though I had seen an apparition. Because I noticed it first in a colony where I had introduced a new queen I blamed it on the candy in her cage. An indignant reply from the breeder led me to look for another cause. I am quite sure now that my strong colonies robbed the infected hives of a negligent beekeeper in the neighborhood. At any rate he hasn't had any bees since that time, which seems to show that I am not far wrong in my guess. Well, I had quite a fight getting rid of the dread disease. It was late in the fall, and no nectar coming in from the field. But then, a smooth sea never makes a skillful mariner. I weathered that storm, and

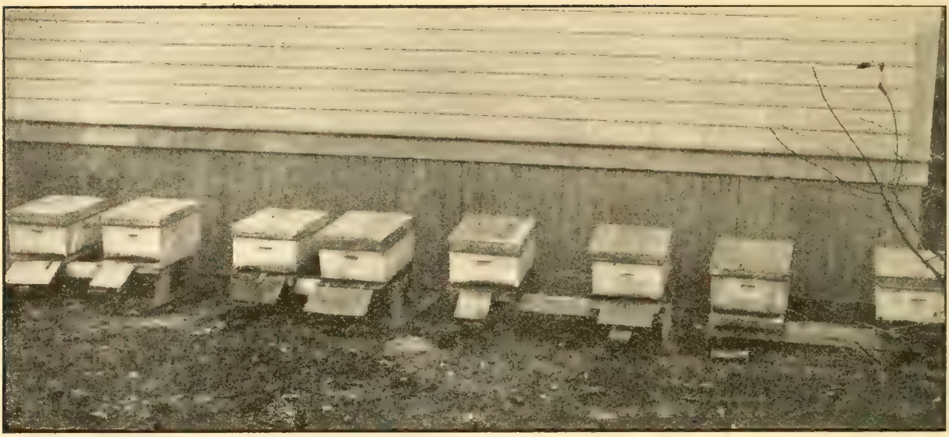

FIG. 2.—A view of the colonies mentioned under Fig. 1.

learned a whole lot besides. At first I intended to let them die; and for that reason I lost several colonies which might have been saved. The next season was poor—only 90 lbs. from 4 colonies. One of them, which had not been treated the fall before, showed signs of foul brood; but it readily yielded to treatment according to the McEvoy method. Since then I have not had a trace of foul brood in my yard, which plainly shows that it may be eradicated.

The following season was better, and yielded about 300 lbs. But my banner year was 1913. From 6 colonies, spring count, which through swarming increased to 9, I received 2125 lbs., an average of 236 lbs. per colony. There was an abundance of white and sweet clover, and the faithful little workers filled super after super.

As this is a town of about 500,000 inhabitants, I'm often asked, " Where is your bee pasture?" We do not live in the center of the town, but about half a mile inside of the city limits. The bees find plenty of sweet clover on the commons and beyond the limits. Last year we had more white clover than I ever saw before.

Again I'm asked, " Don't your bees trouble the neighbors?" Well, they haven't so far. My bees stand along the south side of a school (see illustration). The windows are on the east and west sides of the building. Only once a child was stung. That was last fall, and it was my own fault too. I transferred a colony at a time when there was no nectar to be found in the fields, and when they were naturally cross. I should have waited till after school hours. There were, however, no hard feelings. Though stung in the upper lip, the child's face was not disfigured, probably due to bathing with a solution of soda and water. A pint of honey made her forget all pains.

As the years go by, my interest in bees does not diminish. I consider them a fascinating diversion for a man who leads an indoor life. One of our great authors said: " Every professional man needs a hobby." That is true. Only be careful that it be an innocent one. Some of my friends go fishing when they wish to rest their tired nerves. Others enjoy a baseball game. Tastes differ, of course. We cannot all have the same inclination; but I would not trade my hobby for theirs by any means. For a man who is interested in the great outdoors, and wishes to get a little closer to nature, there can be hardly any thing more attractive and fascinating than the keeping of bees, as thousands of enthusiastic beemen will testify. Most years you will find it profitable besides. In these days of the high cost of living this is well worth being remembered.

But a novice might say, " How shall I start? I know absolutely nothing about bees." My answer is, " If you wish to learn swimming, there is nothing like getting into the water and making an effort. If you wish to start with bees, simply get a colony. You'll learn as you go along." You cannot possibly know less than I did when I commenced. Start in a small way, then you'll not be out very much in case you fail the first time. My first year's expenses were about $20 for two colonies, hives, supers, and tools. But I had $12.00 worth of honey, which was 60 per cent on my investment, and three colonies to go into winter quarters; and last, but not least, many dollars' worth of recreation.

It is true, if you wish to succeed with bees you must have a liking for them; you must be handy with tools; and, above all, you must be resourceful. There are ever so many problems turning up which must be solved. If you are of the right kind you will enjoy this part of it immensely. On the other hand, if you are of the helpless kind, if you can't drive a nail straight, if you cannot act in an emergency, if you are so easy-going that you hate to exert yourself, then take my advice and leave it entirely alone. The hustler, however, will win, even against great odds.

I like to tell my friends the beginning of Mr. A. I. Root's beekeeping career—how that absconding swarm which passed over his head one day in 1865 turned him into a beekeeper, and that he became one of the most important figures in the beekeeping world, and is still living to witness the blessings bestowed upon him by the Lord.

BEEKEEPING AS A HOBBY

BY A. J. JAMES

Amateur beekeeping is a most fascinating hobby. When once inoculated with the germ of bee fever by one's own bees the malady is almost impossible of cure. In fact, there are but few cases of complete recovery on record. It develops rapidly when once started, and leads the victim along with an irresistible attraction to the delights which come from a growing intimacy with the emblems of industry.

" To the artistic eye there are interesting possibilities in the arrangement of the apiary."
A. J. JAMES, San Antonio, Texas.

The uninitiated may scoff at the idea of delights in such a pursuit, and think only of stings, sticky fingers, climbing trees on hot days to hive swarms, and so on; but the real beekeeper knows that these things can be controlled to the point where they are not of any great importance. That there is a great pleasure in the ownership of a few colonies of bees can be attested by the thousands of amateurs who are getting both enjoyment and profit from their little workers.

For the business or professional man whose mind is harrassed by the duties of these strenuous times there is nothing that will give such a relief and relaxation to the tired brain as the time spent in the open air attending to a few colonies of bees. It is a form of recreation that is within the reach of all. All cannot own an automobile nor indulge in the luxury of golf, but anybody can afford a hive or two of bees. It is not necessary to have a large number of colonies; in fact, such a thing would not be desirable for the amateur. It is better to begin with a few and let the increase of the bees and the knowledge of them go hand in hand.

For the man with a scientific mind there is an inexhaustible field for study in observing the life of the inhabitants of the hive. While we have some general ideas in regard to what causes the bees to act as they do, yet there is still room for the patient investigator and observer. We do not wish to detract one iota from the great amount of work along this line which has been done by many who have devoted much time and thought to it, but it is a subject of vast possibilities. It also stimulates a love for nature and brings a knowledge of the flora of the vicinity.

For the man with a mechanical bent there is the opportunity to gratify his desire to work with tools by making his own hives, stands, and so on. Of course, as a general rule it is more practical to buy factory-made hives; but an ingenious man can find a great deal of pleasure in constructing his own.

To the artistic eye there are interesting possibilities in the arrangement of the apiary. A few hives against a background of vines and plants give a pretty effect. They should, of course, be painted white; for, aside from its attractiveness, white has been found to be the most satisfactory color for hives. Paint will preserve the wood, while the white color does not absorb the heat readily, and thus the temperature of the inside of the hive is kept down during the hot days of summer.

Aside from all these considerations there is the added feature of profit. As experience is acquired and the apiary grows, the income will begin to be of some consequence. In a good season one colony should produce from three to five dollars' worth of honey besides the possibility of giving a swarm worth at least two dollars more.

Much more might be said in this connection; but, in conclusion, as the preacher says, it may be stated without fear of contradiction that for all-around genuine pleasure and interest, beekeeping is one of the best hobbies to be found If you doubt it, just ask any of your friends who keep bees.

San Antonio, Texas.

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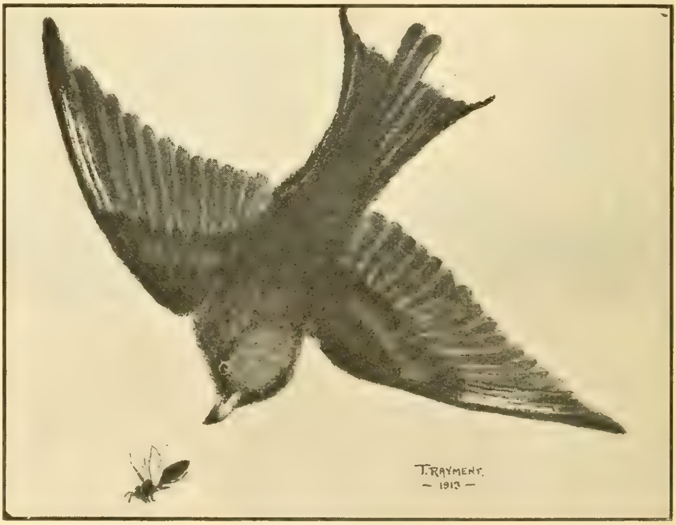
AN AUSTRALIAN BIRD PEST

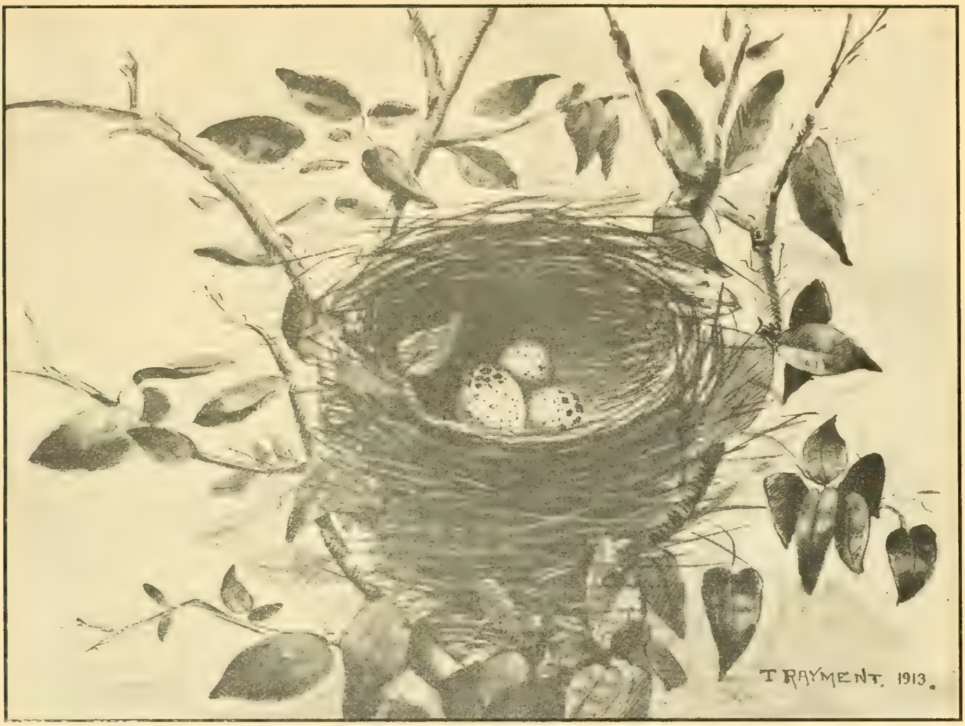
BY T. RAYMENT

In Australia, especially the far southern portion of the Continent comprising the State of Victoria, apiarists engaged in the breeding of queens sustain some severe losses due to the prevalence of wood-swallows. These birds are scientifically known as *Artamidae tenebrosus,* or shrike swallows (sordid wood-swallow). They are also called bush-martins, summer-birds, etc. The birds are partly migratory and probably American bee-farmers suffer from their depredations.

From November, 1913, to February, 1914, inclusive, a colony of these birds established themselves on the borders of the State Forest of Bow Warrung. We have an outyard in the confines of this forest, and within a stone's throw of the bird colony. At first we paid no attention to their graceful, hovering flight, as we were busily engaged in getting queen-cells built. We placed in three-frame nuclei about one hundred nice ripe cells, and in a little while we were astonished at the number of missing virgins—about fifty per cent. From



A wood-swallow of Australia represented about to catch a bee. These birds are also called "bush-martins," "summer-birds," etc.



The carelessly made nest of the wood-swallow.

the next batch of cells we obtained no better results; so we cast about for the reason. The martins by this time appeared very quiet, coming right in among the hives and settling close at hand on small shrubs and on the fence-posts. We began to study them. We observed them to make a gliding circular flight over the bee-yard, then rapidly swoop downward and catch a bee. (We have endeavored to depict this in the accompanying water-color sketch.)

Possessing a love for the native birds we were loth to kill them; but so continuous were the onslaughts on the queens and worker bees, we decided to shoot a few for purposes of investigation. On conducting a post-mortem examination we found in each of the birds from ten to fifteen bees. We noted no parts of other insects.

Some time ago a writer stated in the *Australian Beekeeper* that the birds ate only the head and thorax of the bees, rejecting the abdomen, as it contains the sting. Our investigations did not bear this out, as we found some bodies complete with the exception of the sting. This (together with the perching of the bird after catching the bee) leads us to believe the martins squeeze the bee in such a manner as to cause the sting and poison-gland to protrude far enough to be wiped off on a limb. The hard chitinous substance of the head and thorax would not, without the honey-sac in the abdomen, afford much "meat."

After a week's shooting, the loss of young queens was reduced to normal. Latterly we have taken to hanging the dead birds in various positions in the apiary as a species of scarecrow. This appears to act very well.

Dr. Leach, M.Sc., in his book of birds, mentions the attacks made by the martins upon the bees, and advises the removal of the apiary in preference to killing the birds, as they render incalculable service to the state by the destruction of the insect pests. However, we are of opinion that once the wood-swallows take to the destruction of honeybees they rarely attend to the hunting of other insects.

Some years ago a Queensland resident, under special government permission, occupied a small tropical isle off the coast of the mainland. The island abounded in insect and bird life. There were flocks of birds so great as to darken the face of the sun. The entomologist soon had a small apiary in working order, and the yields of honey recorded read like an account of a record year in Florida. But, alas! the martins came in teeming thousands, and reduced huge colo-

Valentine Uhrich, of Myerstown, Pa., in the apiary where he spends most of his spare time during the warm weather. Mr. Uhrich has been a beekeeper for fully forty years.

nies of bees to nuclei. As the objective of the occupation was to study bird life, the remainder of the apiary was sent over to the mainland, where it has since prospered.

Should an apiary be visited by these birds it is advisable to take precautions. We advise attention to the trees where they roost evenings. They are gregarious in habit, and crowd thickly along the branches, so that a few well-directed shots should have a very chastening effect. In the other sketch we have shown the carelessly constructed nest of horesehair and small twigs. Usually three or four spotted eggs are laid during the warm months, the young emerging from the eggs about December. In Australia the nests are mostly built in the eucalyptus-trees,* that is, red gum, stringy bark,† or box-trees.‡

Gippsland, Victoria, Australia.

A PROFITABLE BACKLOT APIARY

BY ROBERT PESCHKO

Three years ago this month a colony of bees was given me by a friend, and the next spring I increased it to three and took off two half-depth extracting-supers of honey from the parent colony.

The next spring we still had the three colonies, and I killed one queen because I thought she was not doing as well as she ought to, and let them raise another. That mistake cost me a fine crop of honey from that one colony. From the other two I got 100 quarts of extracted honey. I shall never kill another queen unless I have one to run in at the same time.

That summer I increased to six colonies, and last spring I bought three more so we had nine colonies spring count.

Our lot is 50 x 125 ft., so the bees are quite near the house; but they have never annoyed any one, and they seem quite gentle.

This spring we got one nice half-depth super of fruit-bloom honey. We use only nine frames in a ten-frame super, and find it is easier for extracting. We got no surplus from white clover. There were plenty of clover blossoms; but the bees did not work on them. Basswood gave a surplus of 40 lbs. extracted honey per colony, spring count. We put up all our honey in Mason jars, both the pint and the quart sizes, and retail them ourselves. For the pints we get 30 cts., and the quarts 60. I think the best way to dispose of one's honey is to make a house-to-house canvass. It is hard work;

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* *Eucalyptus rostrata.*

† *Eucalyptus eugenoides.*

‡ *Eucalyptus polyanthema.*

Apiary of Robert Peschko, Danbury, Ct.

but in that way one can find the people who like honey, and who usually buy it as long as the crop lasts.

Our extracting-house is 8 x 8 ft.—not very large. It is to the left of the bees, so it is just a step to carry the supers back and forth. The bee-escape boards are all made with galvanized screen wire on them. They work fine, and the honey stays nice and warm. We have a Cowan No. 15 two-frame extractor which holds either two full or two half-depth frames. If I were buying another extractor I would get it a size larger, so that I could put two half-depth frames in each pocket. We use a cold knife for uncapping, and keep it sharp with an emery stick. We have two small galvanized wash-tubs for uncapping. One rests on the other, the upper one being punched full of ¼-inch holes for the cappings to drain.

Danbury, Ct., Aug. 22.

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BIENNIAL YELLOW SWEET CLOVER AHEAD OF THE WHITE

BY F. W. VAN DE MARK

The engraving shows a three-acre field of yellow biennial sweet clover that I have adjoining me here in town. I have found that it is far easier to get a stand of the yellow than of the white, one year with another. It makes a finer hay, stands pasturing better, and will make seed where the white will blast, as it has done here this year. It also gave my bees something to work on when every one else was feeding. It has paid for this alone; but I have thrashed by hand 553 lbs. of good seed from the three acres. I shall not get any from six acres of white. I have thoroughly tried the *annual* yellow here, but for this locality it is a failure.

Stillwater, Okla., July 21.

Three acres of the biennial yellow sweet clover in Stillwater, Oklahoma.

NINE-YEAR-OLD GIRL GRAFTING QUEEN-CELLS

BY WM. GIECK

The accompanying pictures show my daughter grafting queen-cells. She is 9 years old, and these pictures were taken July 15. I raise my queens by the Swarthmore system. She always wanted to try, so this summer she grafted some of the cells for me. She is the youngest girl I have heard of raising queens. I raise my own queens, and supply some for the neighboring beemen. The honey-flow in this locality was only about half a crop; but the bees worked strong on aster and goldenrod.

Aurora, Ill., Sept. 9.

ADVANTAGE OF PRODUCING COMB, EXTRACTED, AND BULK COMB HONEY IN THE SAME APIARY

BY BYRON S. HASTINGS

I heard the best joke the other day that I have heard in a long time. I have my bees in the orchard of a Mr. John Craig. The hives are painted white, and are in three rows, two in a place. The other day as I was going out to the apiary I stopped to talk to a neighbor, and during the conversation she said, "The other day we had visitors, and I just had to laugh at one of them. She said to me, 'I never knew before that John Craig had a graveyard in his orchard;' and I couldn't think what she meant until I went to the window and looked over there. She thought your hives were tombstones."

If that lady would stand in front of one of those nice white tombstones some warm August day she would think there were spooks in that graveyard sure.

In planning to make beekeeping my vocation, naturally the question came into my mind whether I should produce comb honey in sections, bulk comb honey, or extracted honey.

I decided to produce all three for a while, any way. Why? Well, I would rather produce section comb honey, because it takes more skill, sells readily, and is, I think, nicer to handle than the others. But not all colonies are suitable for producing it.

I have two colonies that will store as much as any; will build the comb as straight as a board, fill them clear to the wood, and cap them as white as snow. I have two others that will do as well as the first two every way, except in capping. They cap so that it looks dark and greasy. Some of my colonies are just average—that is, they will do fairly good work in the section, and cap white, but they will not come up to the first two in any way.

Dolores Gieck grafting cell cups.

I had one colony in which, no matter what I would do, the bees in it would not do a thing in the super, but prepared to swarm. I removed all but one frame of brood, the one with the queen on it, and put them into another hive-body, putting frames with full sheets of foundation in their place. I put a queen-excluder on the hive, the comb super on that, and the brood on that. They filled the brood-chamber with brood and honey, and the other hive body with honey as fast as the brood hatched out, but they would not do a thing in the comb-honey super. I took it off and put another hive-body on, with full sheets of foundation in the frames, and they went right to work and filled it. The comb-honey super was put on another colony, and the bees entered it at once.

There were other colonies nearly as bad as this one, so you see it is necessary to run them for extracted honey to get any thing from them; and by having drawn combs I can sometimes get some fall honey that I could not get otherwise. Then, too, a person can sort out the combs having much drone comb, and use them for extracting by using them over a queen-excluder.

Extracted honey does not seem to sell as readily as comb honey.

Bulk comb honey sells well, and provides a good way to get rid of sections that are light weight or have imperfect combs or dark cappings. Comb badly stained with propolis will make the honey taste strong and bitter. Be careful what you pack if you want to build up your trade.

So far I have never been able to put much over six pounds of comb honey into a ten-pound pail; therefore I sell about four pounds of extracted with every six of comb. That is not such a bad way to sell extracted, is it?

I have never tried to sell bulk comb honey outside of my own community, because the home trade has taken it all; but I have had people come fifteen miles to buy it, and there were beekeepers in their neighborhood too; but they said they did not like extracted honey, and the honey in sections costs too much. There was only a few cents a pound difference between the bulk comb and that in sections, but a cent looks pretty big to some people.

I have had considerable trouble with the bees putting pollen in the comb honey in frames. Can some one tell us what to do about it? I am using shallow extracting-supers for it.

Examining one of the combs of a mating-hive.

Brookville, Ind.

[See that there is room for pollen in the brood-chamber, and, if necessary, use an excluder under the super.—Ed.]

BEES SECRETING BRIGHT YELLOW WAX

BY P. E. WAUGH

Although most observers are of the opinion that bees at times secrete wax involuntarily, a nucleus which I kept during the winter of 1914 has proved it to me so conclusively that I thought it might be of interest. This nucleus, because of the small number of bees, early stopped brood-rearing. They were on four combs two-thirds full of fall honey, and I fed some syrup. Notwithstanding the mild weather of fall and early winter, these bees were in distress before January and would all have died of dysentery had not some warm days come, giving them a flight. After January I placed the hive on a screen and brought them indoors every time the temperature was below freezing, setting them out again when the weather was favorable.

On a paper under the screen I noticed wax scales; and upon examining the dead bees that fell on the screen quite a number of them had wax on their bodies. This was repeated several times, so I have saved a few of the bees with the scales attached—also a few of the scales, which I am sending you by this mail. These bees had no occasion to build wax, even in the fall, having more comb space than they could fill.

Home and home apiary of E. W. Fox, Fruitdale, S. Da. The honey-house is the building shown in the background among the trees. Mr. Fox has a full equipment, including an auto truck, power extractor, etc.

I had always supposed that wax is without color—clear, transparent. I have seen it many times when a swarm was shaken in front of a hive. Many of these scales are amber-colored, and I am now of the opinion that some of the very yellow cappings on my golden-yellow fall honey is due in part to the yellow wax secreted by the bees, and not entirely to the yellow pollen from the fall flowers. Can you set me straight on this point? The bees sent by this mail are healthy so far as I know. Like the surgeon's patient, "the operation was a success, but the patient died." These bees died from eating too much, but are healthy bees.

Iola, Kan.

[Knowing that Mr. Sladen had made a special study of wax secretion, we sent the above letter to him, together with the specimens which Mr. Waugh furnished. These he examined and reported on as follows.—Ed.]

YELLOW WAX SCALES.

Lying loose were 48 scales, of which 29 were white, 16 pale yellow, 3 bright yellow; 9 scales extracted from bees were all moderately bright yellow. The scales consisted as usual of numerous semi-fused laminæ of wax. On splitting three of the pale-yellow scales in two it was found that the inner laminæ—that is, those that were adjacent to the wax plates when the scale was attached to the abdomen—were white, and that the outer ones were bright yellow. On splitting the bright-yellow scales in two it was found that both halves were bright yellow. It is hardly necessary to add that no pollen could be detected in any of the scales.

It is clear that these bees had been secreting bright-yellow wax. Whether they had also been secreting white wax is not so certain, for the white color of some of the scales may have been due to bleaching, but this I think improbable.

There is no reason to suppose that the bright-yellow color of the wax was due to a distressed condition of the bees. On the other hand, we know that certain honeys are always capped with bright-yellow wax. A well-known instance of this in Europe is the sainfoin (*Onobrychus sativa*), a plant closely allied to the clovers, the honey of which is as light as clover honey. The bright-yellow color of the comb made from sainfoin honey is generally held to be due to some peculiar property of the honey itself. It is hard to believe that added pollen has any thing to do with it.

Your correspondent refers to yellow cappings produced by a certain kind of fall honey. The production of yellow and white wax scales by his bees might be explained by supposing that the bees produced yellow wax when feeding on this fall honey, and white wax (as we know they will) when feeding on the sugar syrup, which he says he gave them. The restricted movement of the bees during the cold weather would make the differentiation possible.

Ottawa, Ont. F. W. L. Sladen.

WRAPPING A ROW OF HIVES IN PAPER

BY E. W. FOX

I am sending a picture of my home and home apiary. The building furthest back is the honey-house. The front of the house is at the right, and the bees are on the south side. The trees are cottonwood, apple, and walnut.

The hives are all super-packed for wintering. Those close together in the foreground are all ready for papering. I am placing about ten colonies together like this, and papering around the outside. We now have an auto truck.

Fruitdale, S. Da.

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HOME-MADE FOUNDATION SPLINTS

BY JACOB ALPAUGH

[The writer of the following article, Mr. Jacob Alpaugh, is one of the most successful beekeepers of Canada and an all-around mechanical genius besides—one of the few inventors who is able to devise something that is practical and useful. A visit to his yard, we are told, reveals many a clever contrivance.

We have long cherished the hope that we might be able to visit him some time, but the opportunity has never come. We have met him a time or two at conventions, and in the course of our interviews he has dropped various hints of some new device that he is using. Among others was the wooden-splint method of staying up foundation, originated by Dr. C. C. Miller. His method of making as well as applying the splints to the foundation itself we consider to be good, and in response to our request to describe it he sends in the following:—ED.]

I make my own foundation-splints, but it took me a year or two to find out how to make them best. I first take a block of pine from one to two inches thick, and with an ordinary circular saw I slice the entire block into pieces a little less than 1-16 inch thick. I now make another block from 30 or 40 of these pieces, tie a string tightly around each end (back an inch from the end), dip each end into glue, and let dry. The block is then turned on one side and sliced again, thus making 30 or 40 splints each cut. The glue holds them together and keeps them from flying all over the shop; but as soon as they are dropped into hot wax they all separate.

I don't use splints as Dr. Miller does. I make them so that they reach about 2-3 of the way down from the top-bar. I split the foundation as nearly vertical as I can, insert the splint, let the cut come together again, which practically covers up the splint on both sides—no sag, no spoiled row of cells by the bees in drawing out the foundation. The foundation is split down only from the top-bar as far as the splints reach.

[Not fully understanding just how Mr. Alpaugh inserted the splints in the slits in the foundation in such a way that it would be completely covered, we asked him to explain a little more fully. He has done so as follows.—ED.]

I make the cut about two-thirds the way down the foundation from the top-bar of the frame. I do it with a very thin-bladed knife; but I make a very beveling cut by holding the handle of the knife toward the end of the frame, and as near down to the foundation as I can. This makes a cut that will completely cover up the splint when inserted, and allows the cell walls of the foundation to be on both sides of the splints; hence there will be no spoiled row of cells on either side of the comb when drawn out by the bees (I find this very often happened by the Miller plan). After pressing the foundation down firmly on to the splints with the ends of my fingers, I brush a little hot wax on both sides of the foundation directly over each cut. This strengthens the foundation and makes a perfect job. The splints are not quite as long as the cuts I make, so that they are easily inserted.

[Mr. Alpaugh, among his other accomplishments, appears to be a good fisherman as well as a hunter. While what he writes further is a little out of the ordinary bee-lore, it is too good *not* to publish, even if it is a fish-story. Here is what he writes further.—ED.]

FISHING FOR SALMON AND TROUT.

I left Innerkip three weeks ago on a fishing and hunting trip. I am now at Barrow Bay, Ont., 20 miles above Wiaron, on the Georgian Bay. For the last two weeks I have been going out with a friend of mine nearly every day trawling for salmon trout; but as the wind often springs up about noon and makes the water a little too rough for a row-boat we pull ashore, clean our fish, take them to the dealer here, as we cannot eat the twentieth part of what we catch; then we get our dinner and go out in the afternoon for partridge or hare, which are also very plentiful here—some sport, believe me. I want to tell you, when a fellow gets

L. E. Gaylord, a mail carrier beekeeper of St. Paul, Minn.

a 10 or 12 lb. trout on the end of a 175-foot line the world is just about all dead to him except that fish until he gets it pulled in and landed in the boat. The first one I pulled in two weeks ago happened to be a large one, and my heart was running like a steam-engine when I landed it.

Innerkip, Ontario.

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$24.00 A COLONY, SPRING COUNT

BY L. E. GAYLORD

I am a letter-carrier at St. Paul, Minn., and spend my extra time with my bees instead of in saloons. My best year for honey was in 1912, when, from spring count of 18 colonies (increased to 45), I took off 1800 sections of No. 1 honey, and extracted 160 gallons, all of which I sold for $445, which is a trifle over $24 per colony, spring count, or nearly $10 a colony at the end of the season.

I took first prize on white extracted at Minnesota State Fair.

St. Paul, Minn.

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A MYSTERIOUS TROUBLE CAUSING THE DEATH OF A LARGE NUMBER OF BEES

BY P. S. REAVES

There is something wrong with my bees which seems likely to depopulate every colony unless checked very soon. The bees are dwindling rapidly, even though every hive is provided with plenty of stores at the present. Some contain from 50 to 75 pounds.

A little over a month ago I noticed dead bees scattered in front of every hive in the apiary, but I paid no attention to the matter at the time. Yesterday when making preparations for winter I discovered that nearly every hive had dwindled, and there were only four or five that had any young bees at all. All the colonies had queens.

The past season there was a good honey-flow of every kind except white clover, which was a failure with us as in so many other parts of the country. All colonies, with a very few exceptions, are well supplied for winter.

Later, Nov. 2.—The condition of the bees is steadily growing worse; and unless something can be done I am afraid I shall not be able to winter more than two or three colonies. I have just been looking over the bees, and in only one hive did I find a sign of any brood, and that was in only one side of one comb. Most of the unhatched bees, I find, died just about as they were ready to emerge from the cells. I have seen mature bees dead before the entrance, but still not many more, perhaps, than would die ordinarily from a healthy colony. I have a neighbor in town who has found the same trouble.

There is a large amount of applebutter made, and a good deal of fruit canned and preserved, in this country. Some think the destruction of bees is due to their sucking the juices from decaying fruit thrown out from these places.

I live in a railroad town, and the general shops of the road are located about three-quarters of a mile from my bees. Perhaps some kind of poison from these yards or from the smoke makes the trouble. My neighbor has three colonies about a mile out of town that are not affected.

Princeton, W. Va.

[It is possible that the juice from partly decayed apples may be responsible for the trouble; but we should be more inclined to think that the bees have been poisoned. All the facts presented point that way strongly. Is it not possible that some one of the number engaged in making applebutter or cider may have put out something to kill off the bees? If this had been done by even a single person it would account for all that has happened. Syrup poisoned with a strong solution of any of the arsenites would very quickly kill off all the bees in an apiary. We do not like to suggest that any one would do this; but we do not know how else to account for this unless there were some poisonous gases from some industrial works that were killing off the bees, the same as has occurred in Denver. This is hardly probable, however.

Here is another possible explanation, and it has occurred at one of our outyards in the swamps: The bees might have been gathering nectar at a distance of three or four miles. These long flights during unfavorable weather would prevent many bees from getting back, and thus cause a rapid decimation of the colony. It would also cause large numbers of bees to be worn out—so much so that their presence would not be tolerated in the hive. When bees fly a long distance through shrubbery or underbrush, their wings will be worn out prematurely. We suggest that you examine the bees carefully to see whether their wings are frayed out.—Ed.]

CROWNED WITH BEES

BY B. F. SCHMIDT

On the 5th of July of last year I was taking honey from the bees; and while busy at work brushing them from the extracting combs a little swarm came out. Before it had settled, a photographer came along; and by the time he got ready I had the swarm on my hat. I went back to the hive where I was working, and then the photographer took the picture shown herewith.

The wheelbarrow as arranged in the picture with an empty super receives the combs of honey after the bees are brushed off, and then is wheeled to the honey-house.

B. F. Schmidt with bees not in his bonnet but on his hat.

N. Buena Vista, Ia.

THE SUMMERING PROBLEM IN SOUTH AFRICA

Ants, and How to Combat Them; the Ravages of Bee-pirates and Bee-birds

BY F. H. COOPER

While never a number of GLEANINGS goes by but we South African beekeepers can learn something of value from it, yet there is one topic—an exceedingly important one to you of North America and Europe—which we of the tropics and subtropics do not find of any great interest to ourselves. The problem of wintering is comparatively simple for us here. Snow and ice are almost unknown in the Cape Province; and though we have heavy rains extending over a period of four or five months, there is always a goodly proportion of warm and sunny weather, and the days when bees cannot fly are the exception. All through the winter we revel in a profusion of blossom, including scores of acres of the well-known "sugar-bush" (*Protea mellifera*), and a sequence of two or three weeks of settled warm weather will often enable the apiarist to harvest considerable surplus in mid-winter.

Most of us experience a certain amount of trouble in the excessive moisture which condenses on the inside of hive-covers; and, apart from the bad effect of the wet and cold on the bees, it becomes almost hopeless trying to produce fancy sections, on account of the discoloration. Colonies in double-walled packed hives are far less troubled with this condensed moisture, and I am inclined to think this is the hive that meets most of our requirements.

With the exception of this difficulty from dampness and a few minor worries, however, our wintering question is a fairly simple one, providing colonies are strong.

Now, I dare say you of the bee-cellars and winter-cases will be thinking what a fortunate people are these brothers in South Africa; and when I tell you that foul brood (American or European) is at present quite unknown out here, and that there is a market which pays as much for dark honey in bulk as a good many of your largest producers can get for water-white in flint bottles, some of you may be thinking of selling and coming over to share the spoils. Just a few minutes, though, till I have shown you the other side of the picture, and you will possibly think better of pulling up stakes, and may be you will stay where you are.

To begin with, our supplies cost just about double what you have to pay. All my hives and fittings are of American manufacture, and one cannot get goods carried from the United States to Cape Town and then further without paying for the privilege. However, I have found from experience that it is far more satisfactory to go to the expense of purchasing imported hives than to try to make one's own, or even to employ a skilled carpenter.

No great wintering problem for us; but wait till summer comes, and then our troubles begin. The weather on the whole is not bad. Occasionally the heat will melt down a few combs in single-walled hives where shade-boards are not used; but there is generally a little rain each month, and the nights are, as a rule, pleasantly cool. The worst meteorological features in the climate of this corner of the Continent are the winds. From October to April the Cape "southeaster" rages intermittently, sometimes for over a week at a time. These winds blow with tremendous force; and when living in a house unprotected from the southeaster, one is continually questioning whether any structure ever built can withstand such power. When I mention that carts have been overturned, and even the train service held up for a few hours by this wind, you will understand that a bee cannot range far in such a gale, however alluring the flowers may prove. No doubt there is a large loss of life among those bees which have traveled down the wind some distance and then attempted to return home heavily laden with nectar or pollen.

After a southeaster there is usually a calm spell for a day or two, when the bees do finely; but from noon to sunset a strong westerly wind blows almost invariably on every non-southeaster day throughout summer. In consequence one notices most of the foraging work is done early in the morning or toward evening, and at midday the flight of bees is small.

Small worries are often the worst worries; and from the giant "southeaster" I descend to the tiny though no less wonderfully untiring (and most tiresome) insect, the ant. We have been given a splendid assortment of these models of industry out here. There is the large white ant that will chew up almost any wood available, and that dearly loves a white-pine beehive. I am glad to say we are spared this fellow in the South, but we have several smaller varieties that are a great nuisance. There is a minute black ant, a lover of sweets; and where he abounds the housewife knows no peace.

Even if all her cupboards and shelves are isolated on tins of petroleum, the ants will frequently find a convenient cobweb across which they will swarm, and any fruit or sugar left a few minutes unguarded is soon black with these little thieves. I have such a high opinion of the perseverance and ingenuity of these insects that I should hardly feel surprised if one day I found them constructing tiny air-ships on which to reach their coveted sweets! Of honey they are particularly fond, and the careless beekeeper is apt to find, one day in summer, a thick stream of these pillagers pouring in and out of the entrances of his hives, and simply walking through any resistance on the part of the inmates. When once things have got to this state, a colony will generally give up the struggle and swarm out.

Something may be done toward checking these small ants by placing a mixture of arsenic and treacle or honey wherever their presence is noted; but the only safe way to keep ants at bay is by making legs for the hives and setting these in tins of water, kerosene, or, still better, axle-grease, or by surrounding each hive or group with a concrete trough. Where these ants abound it will be a saving of time and trouble to plan some such means of isolating one's hives before setting out an apiary. Even with such provision the defenses must be periodically examined to see that no bridges have been formed by fallen straws or spiders' webs.

There is another black ant, considerably larger and stronger than the last named, which also makes itself a great nuisance to the beekeeper. This fellow is not fond of sweets as his smaller relation, and in consequence does not take readily to poisoned baits. What this ant likes is the bee itself; and any heavy-laden worker that drops in front of the hive is immediately seized by a dozen ants and dragged off. When the supply of fallen bees is not sufficient, this ant will climb up to the entrances and drag down the guards. The bees are quite helpless to put up any defense against such enemies; and where a hive is being worried by these pests one hears that peculiar, terrified whine that bees set up when unhappy or discouraged, and there is always danger that, if the trouble remains unchecked, wholesale swarming out will be the result. Here, again, hive-isolation seems to be the only cure, combined with a vigorous destruction of nests by pouring boiling water or kerosene down every hole from which ants can be seen emerging. Fortunate are those apiarists who can manage to locate on ground unfrequented by any ants.

The next pest is one which is, I believe, more peculiar to South Africa. This is the "bee-pirate," of which we have at least two varieties. These insects are species of sand-wasps (fossorial hymenoptera), and belong to the two genera *Palarus* and *Philanthus,* the former being the more troublesome in this part of the country.

The pirates make their appearance as soon as the hot weather sets in, about November or December, and stay till the beginning of autumn. From about 10 A. M. to 4 P. M. they hover round the hives, pouncing upon the heavily laden bees returning to their homes, frequently taking them right off the alighting-boards. When the bee-pirate is present in large numbers the bees apparently become intimidated, and do not willingly leave the hives, and there are cases where apiaries have been entirely wiped out by this vicious little despoiler.

The pirate, which is considerably smaller than a worker bee, but very strong and wiry, appears to spring upon its victim's back and insert its sting in the bee's thorax, death ensuing almost immediately. The bee is then either carried off wholesale or the nectar sucked out of its sac. The pirates I have caught have honey-sacs similar to those of bees, and the majority of these have been quite swollen with nectar. The Dutch will tell one that the pirate mounts on the bee's back and steers the captive to his lair, thus getting a free ride home before killing him, but this theory seems too good to be true.

There is, however, one, and apparently only one, method of keeping down this scourge, and that is by means of placing about the apiary white dishes containing water and a little petroleum. These dishes must be kept quite clean, as there seems some fatal attraction for the pirate in the white glare of the enamel. This has not been a bad year for these insects; but in half a dozen saucers scattered among my hives I have caught as many as eighty pirates some days, which has evidently had the effect of thinning off the total population in the district. There is no doubt that, if these bee-pirates are allowed to continue unchecked, they will become a very serious menace; but I would far rather have this fellow to deal with than any of the ant tribe or foul brood.

Finally, though I will not go so far as to say this is the last of our summer troubles, we suffer big losses each year through the depredations of various birds; and the worst offenders among the feathered foes to be contended with are the swifts. These, again, are seldom seen in winter, but are in their element on windy days in mid-summer, when they fly backward and forward over the hives with almost incredible speed, snapping up a bee at every turn. They appear in gangs of ten or twenty, and it is heartbreaking to stand and listen to the rapid succession of little clicks made by the contact of beak and bee. I suppose there is not a faster flyer than the swift among all the birds of the world, and well he knows the fact. Secure in their speed these birds are nothing daunted by noise, objects waved at them, or things thrown at them. Shooting, of course, is equally futile. One might as well attempt to shoot a flash of lightning, and the only plan that might be effective would be to stretch wires at intervals from poles over and across the rows of hives, and even then I believe these keen-eyed folk would dodge the wires with a swerve at the moment they were almost on the danger.

In my case I considered an honorable retreat more fitting than any aggressive measures; and as my apiary was located in too open a situation, and on a piece of stone and sand where there was little shelter and many ants, I resolved to "trek" the whole outfit. I pondered long and deep before deciding on my new choice, but eventually chose a sunny clearing in a pine-wood. Here I am sheltered from the worst winds; the only ant at present in the neighborhood is a variety which lives in quite small families under stones, and keeps very much at home. The swifts cannot pursue their dashing tactics among the thick growth of high timber, and at present I can congratulate myself upon the move.

When winter comes, however, I shall have to plan against floods; nor, I dare say, will that be the end of my troubles, as my apiary is situated most conveniently for honey-thieves, and these folk, I regret to say, are far from uncommon in this country, for the native seems totally unable to resist two delicacies—ripe watermelon and comb honey.

But it is of summer difficulties I am writing, and I think I have now done all that I can at present to overcome these by finding such a site for my apiary as I have mentioned above. Even with this protection the mortality among the foraging bees must be exceedingly heavy in summer. When one hears the "click, click," as the swift snaps up his victims, and the sad wail of the pirate-captured bee, and sees the ants swarming everywhere, ready to pounce upon any tired worker that fails to reach home, and when, again, one watches the wonderfully courageous struggles of the laden bees coming home from the distant veld against a terrific southeast gale, one ceases to feel surprise at the fact that even the most prolific queens can hardly bring their colonies out of summer as strong as they were at the end of winter. Still, beekeeping is about as pleasurable and probably as profitable as elsewhere, and we do not intend going out of the business, even when foul brood arrives, as I suppose it will some day. The bee is only just beginning to be known as an item of commerce in this country, and we are happy to be among the pioneers of the industry and of many problems hitherto undiscussed in the great bee-journals of the world. Perhaps the unburdening of some of our own particular difficulties, besides relieving us, may interest the readers of GLEANINGS on the score of novelty if for no other reason.

Groot Drakenstein, Cape Province, South Africa.

SHOULD ALL THE NECTAR BE SAVED? IF SO, WHERE SHOULD WE SELL OUR HONEY?

BY E. S. MILES

Every now and then a man appears in the beekeeping ranks (usually posing as an apostle of advanced beekeeping) who makes it his hobby to inform the general public how profitable the business of honey production is, always basing his estimates on some certain phenomenally good season. Men who have made honey production a success as a sole business do not, as a rule, become affected by this "good season" microbe. When a man has raised enough honey to bring an adequate income to support himself and family, and accumulate a little for the "rainy day," and has *sold* the same, he begins to see that he *must* have a considerable area of territory that does *not* produce honey, in which to sell his production. It is self-evident that, if a man raises his own honey (as some claim every farmer should), *you* cannot sell him any; and if one-half or even one-fourth of the farmers of Iowa raised their own honey in ordinary seasons, a good season such as 1913 would find a large part of them, as well as nearly all the honey-specialists, with a lot of honey that there would be no market for. It is not hard to see that some of this honey would be forced on sale at any price; for any one knows, who has had experience, that the farmer beekeeper, producing for his own use, not knowing what his honey is costing him, will, when he is surprised with an unusual crop, take whatever offer he can get for his surplus, figuring it as clear gain at any price, since he was not expecting to sell any, but keeps bees for his own use only.

A close observation, extending over a number of years, both good and poor, has convinced me that the ordinary farmer, the man who farms as he should, for all there is in it, can buy his honey cheaper than he can raise it. It is true that there is nectar going to waste; but it is also true that there is just as great a waste of soil fertility going on in Iowa. Would it not be more in order to call for conservation of resources in the production of the necessities of life rather than the luxuries? Look at the prices the honey-producer must pay for his necessities, and then at the price at which he sells what is only a luxury with others, and what they will do without if it goes over a certain figure—butter, 30 to 35 cts.; eggs, 25 to 35 cts.; meat, 15 to 22 cts.; flour, $3.00 to $3.25 per 100 lbs., etc., while the beekeeper is lucky to find sales for his honey at 8 to 12½ cents net.

If honey were a necessity, if people *had* to have honey, then the whole situation would be changed. It would only be necessary to hold the surplus of a big crop over until a shorter crop came, when it would sell; and a short crop would make a rise in price commensurate with the shortage; but as it now is, a short crop raises the price a little because but few people like honey well enough to take it at a slight rise, and there it stops. Because the rest think it too high, they prefer to have something else.

I tried once to sell two men 40 lbs. of extracted honey in 10-lb. pails. One of them said he would take two if the other one would take the other two. No. 2 hesitated quite a little, and remarked, "Two pails of honey is a whole lot. If it were *syrup*, I could handle it." Finally I made the deal, and I heard afterward that No. 2 was talking of wanting some more honey. It shows how the market can be extended, you say. Yes, perhaps; but I was barely making wages doing it; and where would I come in if all the nectar in Iowa were being "saved," and two or three other fellows going after this same man? Whoever gets there *first*, or can make the *lowest* price, will sell him the honey, and two or three of us will have to hunt a new man. Can we easily do that? No, it is not *too* easy, right now, to find enough men who like honey to ake a crop large enough to support a man and family. Therefore I am one who thinks the fair way to those already in the business is to let the demand for honey induce a supply.

Let those who have, by years of hard work, built up a successful business, have a fair chance to continue, and *not* use the journals we have helped to support for years to hold up rosy pictures to induce more to enter beekeeping than the demand for honey will justify. I do not consider him a friend who tries to induce, by unfair representations, another man to enter into competition in a special market that I created.

To hold a season like 1913 up to the public as a fair sample of what bees will do in Iowa is about as unfair as it could well be. To be fair, one should say, "If you live long enough, say 25 to 50 years, you *may* see another as good; but it is sure you will see many in which you will not get one-fourth as much."

Before closing I wish to tell something about one particular farmer who has a large farm—who is a real farmer, and has all the work he can attend to without any "side issues." Seven years ago, when I moved to my present location, this man, being one of my new neighbors, I soon found he was quite interested in bees, and I also found why. He is very fond of honey. He was always asking about "the bees," and frequently came over to look around and talk about them. Soon after a party near by, moving away, sold my neighbor two colonies and a couple of empty hives for $5.00. Then it began to dawn on me that my neighbor, being fond of honey, and having a "beeman" so handy, was figuring that, with what information he could pick up, and this cheap start, he could "raise his own honey." Well, I try not to be a hog, so I did all I could to give him correct information; and not only that, but I went over and took off for him the only honey he harvested. The seasons were running very ordinary those years. I think my neighbor had bees about three seasons; and for the ordinary beeman with ordinary bees, to say that they were buying no autos would be telling the truth, if not the whole truth. Well, my neighbor had the "fever." He ran after every stray swarm in the neighborhood; and about the second season he got up to six or eight colonies. He was so anxious for bees that, like most people in that condition, he put them into whatever was handy. He had three or four in the old hives he got with his purchase, and the rest were in boxes and kegs. The first season was poor, or the bees swarmed wrong, or something, and he got no honey, but made some increase. The next season was better, or, perhaps, one colony failed to swarm, for he got about 20 lbs. of honey. The first winter he put them in the cellar, and wintered them; the next winter, having more colonies, and his "fever" beginning to abate, he left them out; and several being late swarms, without enough stores, he lost all but one colony.

By the third season his "fever" was about gone. He seldom asked me, "How's the bees?" but his son told mine that they "put four supers on their one hive and that ought to hold 'em down." The next summer, being with him, and another party or two, some one inquired how the bees had done that summer; and after I had replied "fair," my neighbor said, "I had one hive; but when I looked at 'em last spring they were dead. I guess they couldn't make enough to keep 'em over winter." His account would stand thus. Two hives of bees and two empty hives, $5.00; supers, sections, and foundation (purchased of me), $5.00; time chasing swarms and moving same home, $5.00; total, $15.00. Credit, 20 lbs. honey at 75 cts. per lb., $15.00. I will only add that my neighbor has had no bees for three years, neither has he said "bees" to me in that time. He likes honey, and has bought probably 100 lbs. of me since; but on his own motion I never try to sell my near neighbors honey, because I feel that they might think I did not wish them to keep bees, in order that I might do so. If my neighbor can keep bees and raise his own honey, no one recognizes his right to do so better than I; but this is my observation of the way it works with nine out of ten farmers. They have enough to do; most of them are not adapted to handling bees; and to fix up for it, take time to learn it, then take time needed in their fields to tend to a few bees, will make their honey cost them more than it would to buy it of one fixed to *raise* honey, which includes the *know how*, the aptness, and the liking for bees.

Dunlap, Iowa.

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BRITISH BEEKEEPERS' ASSOCIATIONS HAVE TOTAL ENROLLMENT OF OVER 6000

Hands Across the Sea

BY JOHN SMALLWOOD

I should like to introduce American beekeepers to our beekeeping associations, the organizations and men who have made apiculture in England, who have dug it out from fossilage and ignorance, and made it an important auxiliary to apiculture, and given it its proper rank among the minor industries. The parent stem from whom all the offshoots, 46 in number, have sprung, is the British Beekeepers' Association; and, counting its affiliated members, it has a subscribers' roll of over 6000. It is managed by a council of 21, elected annually, the president vice-president, and treasurer being *ex officio* counselors. . To insure that it is representative of all interests, each branch is entitled to send two representatives, one of whom votes. Council meetings are held monthly, and there are two general meetings, March and October, in each year.

It was in May, 1874, that it was founded. I have the old bee journal of that month and year in front of me, and it is very interesting to turn over its pages, for the names I meet there. They who were the founders of the association are as familiar to you as they are to us. "They were giants in those days."

It was a committee formed to conduct a great bee and honey show at the Crystal Palace in 1874, which was the initiatory council. Among the very first members I notice John Hunter, Frank Cheshire, and Nash Abbott. But the idea had been ventilated previously. In the preceding year the *British Bee Journal* was commenced, and an early correspondent had pointed out how impossible it was for apiculture to be encouraged and taught to the multitude unless there was some organized society who could make it their business.

Their first general meeting was held at the Crystal Palace, Sept. 20, 1874. The first president was Sir John Lubbock, the great authority on bees and ants. Who has not read his books? Among other vice-presidents were Rev. F. Raynor, T. W. Cowan (we have him still with us), and Frank Cheshire. The first honorable secretary was John Hunter. So you see the right men had got the grip of it. They proclaimed their objects to be "the encouragement, improvement, and advancement of bee culture in the United Kingdom, particularly as a means of bettering cottagers and the apicultural laboring classes as well as the advocacy of humanity to the honey-bee," and religiously and honestly have they kept every word of their program from that day until the present.

I will not give its history *in extenso.* There is enough of it for half a dozen articles. The Board of Agriculture consults it on apiculture. It has this last year obtained from the government a grant to aid in teaching and promoting beekeeping. By the aid of this grant it holds preliminary examinations for proficiency in beekeeping, and sends lecturers all over the country, and has established an apiary and school for beekeeping at the Zoological Gardens, London. Of itself it holds intermediary and first-class examinations, issues certificates for all three degrees which are acknowledged and honored, not only at home but also in our colonies. It has never failed to find sufficient men of public spirit, leaders in thought and science, and business men too, to devote time, without any payment whatever, "to the encouragement, promotion, and advancement of beekeeping," as their original declaration enunciates. This is a good record.

Then there are 46 affiliated branches, representing generally a county, sometimes a district. Their reason for existence is to look after beekeeping in their several territories by employing teachers and inspectors, generally entitled experts, holding honey shows, giving awards, and diffusing information generally.

Our *British Bee Journal,* too, is a very important factor. This was established in 1873 by Charles Nash Abbott. Although quite separate from the beekeepers' association, it has always worked with it. In the advancement of the craft one is inseparable from the other. There have been other attempts to start bee-papers, but their lives have been short; and representing, as it does, all up-to-date thought and information on the matter, it can have no serious rival or opposition. Mr. T. W. Cowan is the senior editor, and Mr. W. Herrod the junior, who unquestionably are in the very first rank of modern beekeepers. Articles from the best writers of the day appear in its columns, including T. W. Cowan, D. M. Macdonald, L. S. Crawshaw, Colonel H. J. O. Walker, J. Hayes, C. H. Heaps, W. Herrod, G. G. Desmond, etc. It is bright, breezy, and readable, and penetrates to the most remote corners—everywhere, in fact, where there are beekeepers. The junior editor is energetic, and grasps the inexorable truth.

London, England.

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ODOR AND DISTRESS IN INTRODUCING VS. OTHER FACTORS

BY J. E. HAND

A perusal of beekeeping literature of bygone days reveals the truth of the ancient proverb, "There is nothing new under the sun." It is true that a method occasionally looms up with a flourish of trumpets that savors of a diversion; but a closer scrutiny usually reveals the fact that its history is recorded in the annals of bygone days. For example, the smoke method that is just now being popularized was described in the beekeeping literature of 25 years ago; likewise smoke was used in uniting colonies long before the advent of the movable-frame hive, and the process was described and illustrated in Quinby's book in 1853. Ever since queeen-rearing has been known, smoke in some form has been used in queen introduction. More than 25 years ago Henry Alley used tobacco smoke to introduce queens to nuclei, claiming that its virtue lay in the transmission of the smoke odor. This opinion was also expressed by Mr. Quinby more than 60 years ago. Undoubtedly Moses Quinby was one of the closest students of bee nature in America. The marvelous accuracy of his deductions are wonderful, considering that he had only box hives to experiment with.

More than 25 years ago Mr. Doolittle recommended smoke and pounding on the hive in the direct introduction of queens, claiming that the excitement caused the bees to fill their sacs with honey, and that the smoke transmitted a uniform odor—a belief expressed by the best authorities in the history of American beekeeping. Meantime the late W. Z. Hutchinson advertised to replace all queens lost by his patrons while introducing by the tobacco-smoke method. He told the writer personally that out of the hundreds of queens sold the loss was purely nominal, amounting to only two or three cases. In the wake of this long procession of American authors comes Arthur C. Miller, also a close student of bee nature, also advocating the smoke method of queen introduction, but standing practically alone in the belief that odor cuts no figure in the transaction, and stoutly maintaining that excitement and distress is the basic principle in the direct introduction of queens, and that smoke is merely an economical method of producing the desired excitement and distress.

This seems like a rather superficial view of the case, in view of the fact that we don't use smoke merely to produce excitement and distress, but rather to transmit a uniform smoke odor throughout the entire hive and contents, and at the same time excite the bees, thus causing them to fill their honey-sacs. In this condition nature forbids a hostile reaction against an enemy; but smoke does more, for it instantly transmits its own odor to the exclusion of all others, for smoke is a great deodorizer, with an odor so pungent that an overdose will taint honey. In a hive with every thing reeking with the odor of smoke it is impossible for bees whose every act within the hive is guided solely by the sense of touch and of smell to distinguish friends from strangers. This is demonstrated by the fact that a colony recently manipulated with much smoke will fall a prey to robbers without offering any resistance; whereas if the same manipulations are performed without smoke, robbers will be repelled with vigor—showing conclusively that the odor of smoke inhaled by bees deprives them of the sense of smell, thus rendering them incapable of distinguishing between friend and stranger.

Mr. Miller speaks lightly about ignoring the odor theory, as though it were an easy accomplishment; but the only way he can do it is to separate the odor from smoke. When he shall have accomplished this he will have a solid foundation upon which to build the theory of "distress." It is noticeable that most of the similes introduced by Mr. Miller seem rather strained, and some of his claims somewhat extravagant. This refers to his reference to combs of brood, just hatched queens, alien drones, and queenless bees in cages, all of which are exceptions to the general rule, that prove nothing in favor of or in opposition to any theory. There are other factors to be considered besides odor and distress. This refers to an inborn instinct in bees to accept alien drones, combs of brood, and baby queens, unconditionally, except that with baby queens the colony must be queenless three days or more.

The fact cited by Mr. Miller, that queens from different colonies can be interchanged with impunity when bees are gathering nectar from flowers of like odor, is *prima facie* evidence in favor of the odor theory, being an instance of direct introduction where distress is entirely eliminated. This feature also accounts for the fact that bees and queens often mix with impunity at swarming time. It is proper to state, however, that this condition exists only during a good honey-flow when bees are swarming freely; even then queens are often balled when swarms unite. Try as we may we cannot ignore the fact that smoke is an economical agent for the transmission of odor as well as for the perversion of the sense of smell, hence an economical agent in queen introduction.

Concerning the virgin-queen method of requeening without dequeening, as touched upon, and condemned by Mr. Miller, it, like the smoke method, has a history that dates back 25 years, and is also recorded in Doolittle's book, page 158. Here is the quotation: "If you wish to supersede any queen in your yard on account of old age, or for any other purpose, you have only to put on an upper story with a queen-excluding honey-board under it, place a frame of brood with a queen-cell upon it, in this upper story; and after the young queen has hatched, withdraw the queen-excluder, and your old queen is superseded without your even having to find her." Really and truly, Mr. Doolittle has also covered this subject, and we must go back a quarter of a century to find an economical method of requeening without dequeening, and Doolittle blandly and cheerfully hands it out to all. The question that interests me most is whether Doolittle's book was 25 years ahead of its time, or whether the rest of us are a quarter of a century behind the band-wagon. I am inclined to the latter view, however, for I doubt if a more economical method of requeening without dequeening can be produced. Verily there is nothing new under the sun.

Birmingham, Ohio.

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DOES EUROPEAN FOUL BROOD ATTACK BEES IN APIARIES MORE READILY THAN WILD BEES?

BY ERNEST WEST

Does European foul brood follow painted hives, foundation, and the smoker?

Like many others I am having serious trouble with this disease; and having made some close observations in the past four years on brood of wild and domestic bees I am taking the liberty to inquire whether you have any suggestions to make. During the past four years I have taken 36 colonies from trees, old buildings, beer-kegs, etc.; and during that time I have never been able to find one diseased cell. Some of these 36 colonies had been there for from three to five years, and most of them were taken during the month of August, and in four cases they were less than a mile from badly diseased colonies in hives. Aside from these that I took myself, I asked other bee-hunters to bring home brood that I might look it over, and in that way have probably examined the brood from ten or more wild colonies with the same result.

About March 20, 1914, I took a nice colony of Italians from a tree about a quarter of a mile from my home yard; and what brood they had was perfectly healthy. I fed them on sugar syrup, and increased on the Alexander plan; and to-day I find the one with the mother queen badly diseased. They were put on two perfectly clean combs and new foundation at the first start, and in a new and clean hive.

I find the worst cases of foul brood in eight-frame hives every time.

I had a colony of blacks in an old ten-frame unpainted hive for six years; and after transferring them to an eight-frame painted hive last year they developed foul brood within 30 days; and I fail to see why they should, as they were in fine condition when transferred. Two years ago there were probably 25 beekeepers here who kept from one to forty colonies, and now I do not think there are fifty colonies all told, and I am sure there are not 25 healthy ones. Why the wild bees all around us should be in a healthy condition, and none of the domestics, is one too many for me.

East Hampton, Ct., June 26.

[We referred the above to Dr. C. C. Miller, who replies as follows:]

As you state the case, it does seem rather puzzling. Answering your question whether European foul brood follows painted hives, foundation, and the smoker, I say yes and no.

First the yes. Take a man who has a dozen colonies or more in unpainted box hives, a man who knows very little about bees, and is careless about all he does. While his bees are in box hives, if European foul brood gets into a colony it may stay there a long time without getting into other colonies, and so the disease will be slow about getting into the whole apiary. Then he adopts paint, foundation, and smoker, not so much because he cares for those three things, but because he wants movable-frame hives, and with this usually go paint, foundation, and smoker. Then when European foul brood gets into one of his colonies he exchanges combs throughout the apiary, and soon all are affected. He could not have done that with fixed combs, so in his case movable combs have favored the disease.

Now the no. Take an up-to-date beekeeper whose hives are nicely painted, and who wouldn't think of doing without foundation and smoker, and when European foul brood strikes him he is ready for it, is careful to do nothing to spread it, and promptly uses the well-known means to conquer it. But to use these means he must be able to lift out the combs, and with fixed combs he would be helpless; so in his case movable combs are not only a help but an absolute necessity in overcoming the disease.

So you see that movable combs—the thing that you represent by paint, foundation, and smoker—may be a great help in spreading the disease, or in overcoming it, depending on how they are used.

Let us turn specifically to each one of the things you name. It may be said in general that the disease comes from the entrance of a particular germ. A worker-bee brings it into the hive. Paint has no influence whatever in favoring the entrance of the bee and the germ, nor do unpainted hives prevent it. I may refer to an example in my own experience. When European foul brood struck me, with one or two exceptions all my hives were unpainted. Yet I made a brilliant success of rapidly spreading the disease throughout the apiary.

As to foundation, just a short time ago a document was published by the apiarian authorities at Washington, showing clearly, from actual experiments, that the heat necessary for making foundation is more than sufficient to destroy the germs of European foul brood.

If smoke is the culprit, then it must have taken 40 years of smoking in my case. Moreover, there are thousands of beekeepers who have been smoking their bees for years, and yet have no foul brood. Clearly that idea must go up in smoke.

It may be well to say here that those who ought to know the most about the disease, the foul-brood inspectors, are a unit in saying they can treat the disease only in movable-frame hives; and this is so emphatically true that in some States it is unlawful to keep bees in other hives.

But why is it that you have found no disease in trees when it is found in surrounding hives? I might reply that others *have* found it in trees. I prefer to accept your case without quibble, and quote from the postum advertisement, "There's a reason." A colony badly diseased is so depleted that it does not swarm. So the swarm must come from colonies lightly affected, or not at all. If a colony be lightly affected, the break in brood-rearing caused by swarming will be equivalent to the dequeening treatment for European foul brood, and so we would naturally expect little or no disease in swarms lodging in trees, nor for that matter in hives.

How do we account for the disease attacking that colony that was healthy in the tree, and became diseased when given a clean outfit in a hive? Just the same as we account for the first appearance of the disease in any colony, either in hive or tree. Simply that the disease-germ was carried in. That's all there is to it.

Those blacks in an unpainted hive for six years, then diseased in a painted hive—bless your heart, my bees were healthy in unpainted hives more than 40 years, and then took sick in the same unpainted hives. Paint or no paint has nothing to do with it.

Why is the disease worse in eight-frame hives than in larger hives? Rightly managed, there is no need it should be so; but if it is, it is because the colonies are weaker in the smaller hives, and so less able to resist the disease.

Marengo, Ill.

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NO PAINT VERSUS PAINT; WHAT CAUSES ROT OR DECAY IN WOOD?

Rubber Bands for Transferring

BY E. J. LADD

How long ago it was that the A. I. Root Co. sent their first shipment of Simplicity hives to Portland, Ore., I do not know; but one of these first ones was sold to a man at Camas, Wash., and has been occupied lo! these many years by bees, and it was the writer's privilege to transfer this colony of bees into a modern ten-frame Root hive.

This colony was bought by a friend, an enthusiastic amateur, and when moved was discovered by cutting through a dense growth of wild vines that completely covered and hid it from view. An ax and pruning-shears were effectively used, and after removing many feet of heavy vines the hive was found under leeway of an old rail fence that was also completely hidden. How bees ever got through that tangled mass is a wonder.

For some time the weather had been wet and cold; and when exposed to daylight this hive was wringing wet and saturated—was without cover other than its own, and it was split, but patched up tight with propolis. On inspection we found the bottom-board rotten, but had been nailed, and the hive was apparently in good condition. On lifting, we found it very heavy; and after weighing we found it weighed 174 lbs. We closed it and put a sound board under it, and placed it in the auto. It was taken to Portland, and transferred as an object lesson for the above-noted amateur. We believe it was the best stand of bees we ever handled—well-marked hybrids, and condition perfect. The combs were built across the frames, but straight. The job took 20 minutes. Only one new frame needed to be filled with pieced combs. The rest were filled completely with fine clean combs without a trace of mold anywhere. Rubber bands stretched around each end of the frames and combs made them safe and sure. Did you ever try the band?

The condition of the hive was superb—not a trace of rot or decay. Though not painted, it was as sound as a dollar. Mine painted and protected are no sounder, and combs frequently mold. Explanations are in order, "paint vs. no paint." I doubt if this hive saw real daylight for 15 or 20 years except in winter, or was ever thoroughly dried out, as the thicket was so dense no one would suspect its occupancy. The former owner says he saw it only in the winter, when the vines were bare of leaves.

Portland, Ore.

[Where wood is kept constantly wet, with no intervals of drying out, it will keep sound almost indefinitely. Timbers in ships that have been sunk for a century are still sound and good. What rots lumber is alternate wetting and drying, and shrinking and swelling. In the case of the hive cited, the use of paint would have made no difference.

Rubber bands for transferring are very handy—much better than strings or strips of wood. They have been mentioned before in these columns.—Ed.]

Heads of Grain from Different Fields

THE BACKLOT BUZZER.

Did you ever stop to think what a beautiful word "Honey" was, and how careful you had to be when you said it to the other fellow's girl?

Queries Regarding Making Comb Foundation.

Does wax have to be treated with sulphuric acid when one is making medium-brood foundation for his own use? or does the bleaching with the acid improve the quality of the wax?

What is the cause of the wax slipping on the boards? It seems to break loose from the boards and slip a little on the second or third dipping.

Should the water in the tank where you put the boards after being dipped be warmed a little, or cold? The sheets bothered us somewhat by cracking when we put them in cold water.

In Cowan's book, Wax Craft, it speaks of using five per cent of tallow with beeswax to help in the bleaching, five per cent not being considered an adulteration. Would wax thus treated be fit to work into brood foundation?

If you use soapsuds as a lubricant on the rollers of the mill, doesn't the foundation have to be rinsed before it can be used?

Can wax be burnt where steam is used for heating?

Should the wax sheets roll out much longer when they are being run through the mill?

Could wax that had been adulterated with paraffin be used to make foundation?

What per cent of salt should be used in the water where the sheets are tempered before rolling?

Is it necessary to let the sheets lie three weeks after they are dipped before rolling? Does it improve the foundation to leave it to season three weeks?

Brooks Park, Minn., March 16. HARRY BELL.

[You do not necessarily have to treat wax with sulphuric acid that you make brood foundation from; for, aside from the clarifying, there is no particular virtue in the use of the acid. Almost every one who attempts to use the acid uses too much. It is much better to err on the safe side, and use too little. We have often told beginners to take the amount which they thought would be about right, and then throw away nine-tenths of it.

There are two possible causes for the wax to slip on the board so that it might come entirely loose at the second or third dipping. The first and principal cause is that the boards are too wet; the second, that they are too cold. We presume from what you say that your trouble was on account of having the boards too wet.

The water in the tank where the boards are placed should not be too cold—55 degrees would be all right. It warms up somewhat after a little, but does no harm unless it gets entirely too warm.

We do not advise the use of any tallow in the wax.

Soapsuds when used as a lubricant on the rollers of the mill does no harm, for the pressure removes all the excess of the solution so that practically none of it is left on the wax.

It is very easy to make foundation with wax that contains some paraffin, but the trouble is that such foundation will not stand the heat of the hives without sagging badly, and in some cases breaking down entirely, as in case of very hot days in a strong colony when the bees cluster on the foundation in large numbers.

The exact percentage of salt is not important, although the water should not be so briny as to make the boards look white. About one pound of salt to a pail of water is sufficient.

If the sheets can be allowed to season two or three weeks the wax becomes much tougher, and there is less difficulty in milling. Be sure that the sheets are entirely cold on both sides before you pile them up, however. Otherwise there is liable to be considerable sticking.

Wax is likely to be overheated by a dry heat, as over a fire for instance, if the vessel containing it is not surrounded by water. With steam heat there is practically no danger of overheating. At the same time, do not allow a small quantity of wax to remain in the bottom of a large tank subjected to steam heat for a long time, as it will then undergo some change, or there will be danger of it.

The foundation is usually quite a little longer than the sheet, the exact increase in length depending on the thickness of the sheet.—ED.]

Fastening Foundation in Sections and in Frames

I am getting up 100 shallow extracting-supers, ten-frame. I will wire them. Would it be advisable to use thin brood foundation? How near the bottom-bar should the foundation come? I have some trouble because of foundation coming loose at the top. I fasten it in with a Van Deusen wax-tube fastener. Is there any thing that I could apply to the top-bar like rosin or paint? Should I put some rosin in the beeswax? Is it all right to use some paraffin?

In putting these new supers on should I put all the frames in the supers to start with, or would it be better to put two or three in the middle?

I am expecting to fill my sections with full sheets (or nearly full) of foundation. Would you advise full sheets in sections? how would you put it in? My trade is all home trade. Possibly it would not be advisable to use full sheets.

There is some difference of opinion in regard to bottom-starters in the height and the distance between top and bottom starters. What do you advise?

Should I attach the upper starter to the sides? Should they crowd the sides very close?

Waterloo, Ia., Feb. 6. Ed. E. Rich.

[For shallow extracting-frames the thin brood-foundation is often satisfactory, although the bees seem to work on the thicker foundation a little more readily.

It is not practicable to put in full sheets, even in shallow frames, as they come nearer the bottom-bar than ¼ inch; or otherwise, when the foundation sags, as it will slightly, there must be some room at the bottom to prevent buckling or a bowing-out of the comb.

We do not recommend rosin for fastening foundation in sections, as the line of rosin is likely to be cut out when the honey is being cut out of the sections for the table, and this edge of rosin on one side gives a bitter taste. However, it may profitably be used when foundation is being put into extracting-frames or brood-frames by the melted-wax plan. Different beekeepers have different proportions of rosin and wax. The rosin takes a rather firmer hold on the wood than the wax alone, and it also is a little cheaper to use. We do not recommend much paraffin in the mixture, although if considerable rosin is used some paraffin may be substituted without bad results.

When getting foundation drawn out, it is customary to use an entire super of foundation at a time, especially if you use full sheets. Some, however, alternate the foundation between fully drawn combs to get them drawn out more evenly.

If you use full sheets of foundation in the sections it really pays to fasten it with melted wax an inch or so from the top on each side, to prevent the tendency of the sheet swinging over when the bees cluster on one side, so that the comb is attached to the separator.

A very satisfactory compromise between the small starter and the full sheets is a large V-shaped starter, the lower point being in the middle from left to right, of course. Many beekeepers use such starters with great satisfaction. It is nearly the natural shape of the comb when built without foundation by the bees.

When double starters are used, the lower starter should not be over ⅝ inch in width, and the space between the top starters and the bottom starters should not be over ¼ inch for best results.—Ed.]

Immunity from European Foul Brood

"If European foul brood should rage in a certain locality a few millenniums (possibly a few decades) I should expect the survivors to become nearly if not quite immune," says Dr. C. C. Miller, page 720, Sept. 15. By this am I to understand that I shall have become very aged, or, indeed, an old-timer (?) as a ghost before I can notice this immunity? If this is so, there is no consolation here. But according to my experience it is not quite so bad. It has been like this:

It was eight years ago when the disease appeared in my yard for the first. There were a few colonies already affected when I first saw it; but very soon the entire apiary of over 50 colonies succumbed. This rapid and general spreading was a marked characteristic of the disease at that period. Last year, again, there was a time in early spring when one condition, at least, was similar. The quantity of the disease in the yard was seemingly about the same. There were, say, but two or three colonies affected, and these in early spring. But there was this difference—the disease this time did not spread, while the few colonies affected rid themselves of it later on. What a great change! Has foul brood ceased to be foul brood?

The third year during this trouble I brought to the home yard about 20 colonies from the adjoining county. Although these colonies were healthy at first, they did not remain so very long. All became diseased. But here is the point: The virulence of the disease was greater in these new colonies than in the old, and the new were not as amenable to treatment as the old had become. Again, all environments otherwise seemed to be similar in the instances cited. Therefore it follows that the change had happened in the bees themselves.

I am glad to say that I have seen the end of the trouble, or at any rate I did not see a vestige of it last summer. In view of this great change, what about the robber or the nurse bee as a primary cause in the spreading of the disease? Hardly consistent. It is quite obvious that there is some other factor in this trouble, of more importance, that time only has been able so far to prevail against. Will some one please tell me what was the matter with the robber bee and the nurse that they were not on their job in my apiary last summer while they had then as much material to work on as they had eight years ago? No: if the disease depends on the robber or on the nurse we should never get rid of it, as these are constant factors.

As a matter of fact, in a yard that is already foul-broody, robbing is not such a menace as it has been taken to be. Instead of extending the boundary of the affected area it limits the same by eliminating the weak colonies and making the strong still stronger—a condition much desired in a foul-broody apiary. I do not mean when I say this to encourage robbing. I merely say it to encourage the apiarist so that he will not worry about a little of it if it should happen. D. Roberts.

Plymouth, Ind., Oct. 12.

[Your bees may be immune, as you say; but are you sure that your stock, seven or eight years ago, had not degenerated? It would not be unreasonable to suppose that your present bees, being of strong vigorous stock, might be much better able to resist the disease.—Ed.]

What Hives to Use—Something about T. B. Terry

I am nearly 60 years old (or young), and am just starting to keep bees. I feel that I have lost a great deal by not starting sooner. On last election day I bought three colonies in soap-boxes, and on Thanksgiving day I packed them nicely in chaff in a piano-box brooder. Now, next spring I want to transfer them to modern homes, increase this year to about five colonies, and eventually to ten, but *no more*. I want all the surplus I can get this year, as well as in years to come—comb honey only.

I want to get five hives and other necessary supplies soon. I have decided just what I want of every thing except the hive. As to that, I cannot decide, and that is why I am writing you. I have read carefully "The Buckeye Hive," and it looks good to me; but the difference in cost is an item to me. My personal adviser in bee culture is a farmer who has about 50 dovetailed hives, and he advises me to get nothing else. He tells me Dr. Miller, Doolittle, Alexander, and all the successful beemen use single-walled hives.

I am taking a correspondence course from our State College, and they advise single-wall hives. Now, would you advise me to get the Buckeye for *my* location and conditions, comb honey only, never to exceed ten colonies? No natural swarming, as I am away every day except Sundays and holidays from 7 a. m. to 5 p. m. Location, I presume, is about the same as Medina—a little south, but further from the lake.

I took GLEANINGS years ago when I could not keep bees, just for the Home papers. I am not envious, but I do wish I had the power to do good that A. I. Root has, and friend Terry, and others. A few years ago I was just about to go to the hospital to undergo an operation for cancer. As a drowning man catches at straws, I thought of first going to see Mr. Terry. Result was no operation, and am better now than then, thanks to Terry, the simple life, and the great physician.

McKeesport, Pa., Jan. 26. T. T. HIBBEN.

[The choice between single-walled and double-walled hives depends entirely upon whether you have a suitable cellar where the temperature can be kept quite uniform, say between forty and fifty degrees through the winter, and where the ventilation is good. If you have, we do not believe it would pay you to invest in double-walled hives, unless, for some reason or other, you are unable to give the bees any attention through the winter. Bees in the cellar occasionally require some attention, such as opening windows, etc.—ED.]

The Gasoline Blow-torch—Some Uses

This may be considered the beekeepers' friend, and I will mention some of the ways he may use it. The painter uses it to remove the old worthless paint before the new is applied, and the beekeeper may us it for the same purpose if he wishes as smooth work on his hives as on his own home. It not only helps to remove the paint, but it also removes a measure of dampness from the surface, which is quite desirable before painting. The hives, being near the ground, gather considerable dust, insects, worms, and their webs, which may be quickly removed with the hot flame.

The torch, however, is most often recommended for cleaning hives and the fixtures that have contained foul brood. But it may also be a preventive in the spread of diseases. All hives and fixtures from other and unknown apiaries and conditions must be disinfected by the torch before coming into my apiary. If this were more carefully done there would be less spread of disease through the transfer of old bee-supplies.

As a further caution it should be added that excessive burning of the wood is not necessary. The blaze is so hot that it may be passed quite rapidly over the surface. The torch will also be found useful for many other purposes, like melting wax, thawing out frozen water-pipes, etc. It is a good thing to have at hand ready for use.

Litchfield, Mich. EDWIN NEWELL.

Honey from Peas

In the summer of 1894 a great deal of the land here was burned over with forest fires. The following April I sowed a piece of this land to field peas, usually called here Canada peas, and in Canada, golden vines. They made an enormous growth, and yielded 35 bushels to the acre. At that time I had six colonies of bees, and there were other colonies in the neighborhood, besides wild bees. Well, when those peas were in bloom they were simply swarming with bees. I do not remember ever seeing them as thick on a clover-field. At the same time, my bees were storing a peculiar honey which undoubtedly came from the peas. The cappings were the most beautifully white that I have ever seen. The honey was very white, exceedingly thin, and almost tasteless. A local buyer got hold of some of it, and it looked so good that he wanted all I had left, and he got it, and sold it along with a lot more.

Since then I have grown peas many times, but have never seen bees on them, and never had any more of that kind of honey. This year I had three acres of peas which were in full bloom just after clover ceased, and when there was no nectar coming from any source; but though I passed the field frequently, and watched carefully, I never saw a bee on them.

Had I known in 1895 what an unusual occurrence was going on I should certainly have watched to see how it was done, but, in my youthful ignorance, I supposed it was the ordinary thing.

Coleman, Mich., Sept. 15. F. H. CLARKE.

Why Swarms Often Cluster in the Same Place

There are many quick guessers in this world; they are sometimes called very intelligent, for they can converse upon almost any subject. What they don't know they guess at. I am inclined to think some of them keep bees.

I found a small swarm of bees to-day; and after they had gone, while examining the place where they had been I noticed some small white specks. I tasted of one of these specks, and found it was wax; and remembering where another swarm had clustered on a chestnut-tree a few days before, I went there to look for wax. As soon as I got near the tree I could smell it. Now, is it not more reasonable to suppose that the bees are attracted by the odor of the wax than by the odor of a queen—especially after several heavy rains?

I was just thinking the other day how convenient it is that all bees are the same size, and that we need only one size of honey-board—.163 inches; and now I read of Mr. Calcutt's experiments, p. 498, July 1, trying to raise larger bees. Please have him arrested before he succeeds. Just imagine having to measure all our queens and drones before sending for honey-board and traps! One of the very best things about the business is that the bees are all the same size.

Hammonton, N. J., July 8. C. E. FOWLER.

My Experience with Honey-clogged Brood-chambers

I remember in my early beekeeping days, when I was located in Northern Vermont, that I used the standard L. hives, and for a comb-honey super I used a two-pound section about 5¼ x 5¼ x 2 inches. This was a two-piece, and nailed. I used starters of nice white drone comb, which was fastened in the center of the top. I used a light low rack to hold these sections. I used no separators, and for a follower against the outside sections I used glass. A colony cast a swarm; and, as I remember, there was a super on the hive. Possibly the swarm was premature, and there were only eggs in the royal cells. At any rate, the young queen was a long time in beginning to lay. On taking a peep at the sections I noticed the drone comb that was built about one-fourth way down, the bees had changed to worker comb. I examined all the sections, and found the lower half of all, worker comb, and about the thickness of brood comb, and left empty of honey, although the drone comb above it was nearly full of honey. I examined the combs below, and found them filled with capped honey; and the bees building new comb in the sections had made there a brood-chamber for the young queen. I closed the hive as it was, and awaited events. Those sections were finished out and filled with honey. When I removed them I took a look at the combs below. The honey was gone, and a fine large brood-chamber. The young queen had driven it above; so it seems that the best thing for a honey-clogged brood-chamber is a good queen.

Several times I have seen a brood-chamber filled with honey one-half way down, and a small brood-chamber in the lower half. I have on different occasions taken out two or three of the fullest combs from the side, and in their place in the center I have put as many frames with starters only; but in building the new combs the bees would fill the upper half with honey so that the brood-chamber was no larger than at first. showing that this small brood-chamber was as large as the season and nature required.

Yacolt, Wash. H. E. HARRINGTON.

Sending Honey by Express in Glass-front Shipping-cases

Speaking of express companies and the manner in which they handle packages, I have this much to say:

About the first of June I sent by express to a friend at Pass Christian, Miss., a 12-lb. regular shipping-case of comb honey. The distance from here is about 625 miles, and the honey changed cars about four times before it reached its destination. My friend informed me that the honey reached him in perfect condition—not a cell broken. How was this for care in handling? Of course this honey was well packed; and with glassed front the fragility of the contents was exposed to view.

I have done quite a little shipping by express, and I always use the greatest care in putting up my honey. As yet I have no first breakdown to hear of; and as this particular shipment went through in such perfect order, I have come to the conclusion that if the beemen do their part the expressmen will do theirs.

I advocate the use of glassed section-cases for the shipping of honey; and where they are used, the honey commands more care in handling than it would if it were in a case without the glass.

A precaution I take in shipping honey by express is to wax every crack and crevice of the shipping-case. Paraffin wax may be used for this operation. In case the combs become leaky the honey cannot get out to make sticky hands. Any package, such as honey, molasses, candy, etc., that becomes sticky in transit will be handled roughly, I assure you. It will get more kicking than it will handling. It pays to pack honey in the best possible way.

S. W. BOSWELL, JR.

Cornerstone, Ark., July 16.

Colonies of Bees not Insurable

Could you give information as to the insurance company that you insure your bees in? Does any company operate in Michigan? Most companies do not care to insure them.

Bellaire, Mich., Oct. 26. P. W. SOWINSKI.

[We do not carry any insurance on our bees. A year ago we tried to get several companies to insure the bees at Randlett's Landing, near Apalachicola, Fla., but no company that we could get hold of would take the business. We have been informed that no insurance company will insure bees against loss by fire. One company with whom we took up the matter seemed to have the impression that there would be a large salvage, because the bees, the moment that fire broke out in the apiary, would fly out and then could be saved. The company did not realize that the bees would rush right into the fire and be burned of course, like a horse that would rush into his stable when it was on fire.—ED.]

Plum-trees for Shade, Profit, and Windbreaks

My apiary of 100 colonies is located on an area of 48 square rods of land. On this plot of ground I have 55 plum-trees, 4 apple-trees, and 3 pear-trees. I find the plum-trees extremely well adapted for shade, and each occupies only a small space. I find also that they are very profitable, as the net income from my plums last season was $80.

The trees afford a much better windbreak than a board fence. I have tried both.

The returns from my apiary last season were 7000 lbs. of fine comb honey, which sold at 17 cents a pound.

My bees are a cross between the leather-colored Italians and the blacks. I use the old Manum hive. I have five colonies in Langstroth frames, but have never been able to get the amount of honey from them that I have gotten from the Manum hives. After all, it is not so much the kind of hives or frames as it is the kind of man behind them.

Fair Haven, Vt. I. N. HOWARD.

Freight Rate on Comb and Extracted Honey the Same in New South Wales

Some time ago the editor asked a question with reference to our freight rates on honey. I overlooked making a reply at that time.

There is no distinction between comb and extracted honey on our merchandise-rates book. I do not think there is sufficient comb honey sent by rail in this state to make it worth a special rate.

Smaller lots than 2 tons go by A rate, which is about 50 per cent higher; still smaller go by "Small Consignments by single-package rates."

	60 lbs.	90 lbs.	112 lbs.	140 lbs.
Up to 50 miles........	1-0	1-0	1-0	1-0
Up to 100 miles........	1-0	1-0	1-3	1-6
Up to 200 miles........	1-3	1-9	2-3	2-6
Up to 300 miles........	1-6	2-3	2-9	3-3
Up to 400 miles........	1-9	2-6	3-3	3-9
Up to 500 miles........	2-3	3-0	3-9	4-6
Additional 100 miles....	3	3	3	3

Honey also goes at half rates by passenger train (stamped parcels).

HERBERT J. RUMSEY.

Dundas, N. S. W., Australia, June 5.

Paper Hive-numbers.

A good way to number hives is to cut out large figures from calendars and smear a little linseed oil on them. Also put some oil on the hive where you want the number to stay. Put the number on; and after it dries a little put more oil over both, and let it dry. Numbers so applied will neither wash off nor discolor.

Pacific, Mo., April 23. RALPH A. SMITH.

Only One Queen Lost by the Smoke Plan.

I have read your editorial of Sept. 1 on introducing queens by the smoke method. I gave it a trial this spring on two dozen queens, and lost but one. I think the smoke method is good.

Antioch, Cal., Sept. 14. GEO. W. MOORE.

The Winter of War-time

BY GRACE ALLEN

The winter of war-time has blackened our blossoms;
 "Brotherhood," "Love," their fragrance has fled;
"Friendship of Nations" gone; and our beautiful
 "Peace upon Earth" is now ruined and dead.

How hopefully, joyously, we had been gleaning
 The heavenly sweet of these spirit-sown flowers!
Now hoarse with our terror, bewildered and beaten,
 We moan at the tragic, embittering hours.

While out in the desolate grip of a winter
 That rushes and reels like a storm-driven thing,
The undismayed bees, clustered close in the darkness,
 Are waiting the thrill of a radiant spring.

Nothing they know of the forces eternal;
 Never they ask why the summer has passed;
True to a light they have known and still dream of,
 They hope through the dark and keep faith to the
  last.

A. I. Root

OUR HOMES

Editor

Why beholdest thou the mote that is in thy brother's eye, but considerest not the beam that is in thine own eye?—MATT. 7:3.

And Elijah said, I have been very jealous for the Lord God of hosts; for the children of Israel have forsaken thy covenant, thrown down thine altars, and slain thy prophets with the sword; and I, even I only, am left; and they seek my life to take it away.—I. KINGS 19:10.

Some weeks ago I listened to a sermon that has impressed me a great deal ever since. The minister suggested that Elijah was headlong and vehement in his crusade against the prevailing wickedness and infidelity. He gave it as his opinion that Elijah put to death the priests of Baal on his own responsibility. God answered his prayers, sent down the fire from heaven, and afterward sent the rain; but God did not, so to speak, the speaker claimed, give him any command to put to death those deluded and perhaps to some extent innocent prophets of Baal. As a consequence of Elijah's folly, the Holy Spirit deserted him for the time being, and poor Elijah "got the blues." He tells Jehovah that he has got tired of fighting all alone. He even says, "And I, even I only, am left." He takes it for granted, like some reformers of the present day, that he was almost the *only* good man left; yet Jehovah tells him, in the 18th verse of the same chapter, "I have left me seven thousand in Israel, all the knees which have not bowed unto Baal." Elijah was perfectly ignorant, like some people just now, of the good men and women in our several States and nations who are going to block the way and prevent *every thing* from "going to the dogs." Let me digress a little.

A year ago I told you about the little church up amid the hills in Leelanau Co., Mich. A devoted Christian woman who has been the main prop of the church and Sunday-school for many a long year said to me that *socialism* was breaking up the church, or would break it up if something could not be done to stop it. I know, dear friends, I am in danger of getting into "a hornets' nest" if I fight socialism here on these pages; and it would be out of my province to go into politics and these many "isms." I am sure God has not called me to give space to very much along this line. But let me say briefly that I am a friend of the laborer. I have labored all my life with hoe and spade. I am doing it now every day, or perhaps I should say a small part of every day—enough to give an old man like myself sufficient exercise; and it is no make-believe, either. If you could see the stuff I carry around to the neighbors as the product of my toil, you would have to admit my work "bears fruit." And I am glad to see the working people (especially those who work outdoors) band themselves together to prevent extortion and injustice; and when the pay that is offered those who work for wages is not what the laborer thinks it ought to be, I am glad to see him ask for more; and if his employer or the company of employers decide they cannot pay more, it certainly is his privilege to quit. But there ought to be a Christian spirit on both sides in settling this matter as to the *amount* of pay. Thus far I think we are all agreed, or at least fairly so. But the man who gives up his place because the pay (as he sees it) is insufficient, has *he* any right to demand that nobody else shall take his place? Has he any right to block the way to prevent some other needy soul from taking the job he has already given up?

Right here in our nation of peace and good will we have come pretty near civil war in several instances. Just recently United States troops have been called on because the State militia could not handle the insurrection or rebellion, and I am afraid the matter is not yet entirely settled while I write.* Let us now go back for a moment to that little church among the hills where I (years ago) helped to establish a Sunday-school.

The good brother who carried me over to catch the train argued quite at length to convince me that it is contrary to Bible teachings, and *wrong*, to receive interest for the use of money. He maintained that the man who has more money than he can use profitably should let his neighbor have the use of it without interest. I tried in vain to convince him he should pay something for the use of *money*, exactly as he would pay rent, either in cash or a part of the crop for the use of the land.

From what I have seen of socialism the promoters of it are not happy people. I maintain that every son and daughter in the United States has a *right to be happy*. We should present a smiling face to our friends and neighbors, especially those whom we have not seen for a long time. If socialism makes people cross and unhappy, sour-faced, and always grumbling about the wickedness of the great wide world, then there is something wrong, I am sure, with socialism. You remember Pollyanna told a poor discouraged minister that the Bible tells us *over 800 times* to "rejoice and be glad." Yes, dear friends, it is a Christian duty to rejoice and be glad, even if the war in Europe has not yet ceased, and even though our State of Ohio does *not* vote dry. You will please notice I am dictating this paper Oct. 8—three weeks before election.

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* After the above was in type I find in *Our Commonwealth* an article from F. O. Burdick, M. D., President of the Associated Charities of Boulder, Colo., from which I clip the following: "They are not only determined not to work themselves, but they are equally determined no one else shall mine the coal so essential to the public welfare."

Well, when I last visited that Sunday-school in the little church up among the hills I was asked to take charge of the Bible class. I shook hands with all the friends I had not seen for some time back, and received a genial hand pressure and smiling faces and pleasant words from almost every one. Years ago it was my pleasure to get quite a number of these friends to come forward at a revival meeting. There was one young man of considerable ability who went forward at my solicitation, if I remember correctly. I expected a good deal of him; but if I am correct he did not at that time unite with the church, and I think he has not yet done so. I plead with him, and wondered what kept him back, but I could not get at the trouble, if there was any. When I met him in that Bible class he seemed a little reluctant about taking my hand, or at least I imagined so, and he gave me no smile, or at least a very faint one. As he is a beekeeper, and takes GLEANINGS, and has for years past, I wondered why he should hold me off, as it were, at arm's length, for it was something very remarkable and *unusual* when I meet any one who takes and reads GLEANINGS. Finally it came out where the trouble was; and as I have his permission I will give his letter below. You will notice I kept it several months before deciding to print it, and I do so now with a prayer that good and not evil will come of it. Here is the letter:

A. I. Root:—I am going to surprise you a little, because you think you are trying to be such a just man, by sending you something to read; and if after you have read it you don't begin to see daylight in some other direction than what you have been wont to uphold (which is the present system of business and Christianity), I shall not be afraid to bet my soul (if I have any) that you will ever get even within an imaginative distance of heaven.

I have been reading your writings for some years back, and expect to read them for some time to come; but if it has taken you forty years to advance as far as you are now on the problem of high cost of living and Christianity, I might better quit· for I don't believe, and, furthermore, I *know* you will never live long enough to get down to bedrock.

In one of your Home papers you made the remark that you were not a socialist yet. You could understand electricity to some extent and predict its usefulness, but you cannot understand socialism, nor even see wherein it can be any good, and all because of that "dollar;" for if we had socialism you could not shine so far above the rest by the amount of wealth you can pile up. You have always been harping for the laborer to have a back yard and raise something for his own use, and thereby make a short cut between producer and consumer. Now, don't you know that, if you do that, somebody else has got to lose just that much? Well, if that is a good thing (and in some respects it is) why not have the laboring man go to work and dig up some of the dirt in the back yard of his brains and grow a little *common sense,* and then use that common sense for his own good by studying the different political parties and the system they stand for; and as he goes along he can learn the multiplication table; and when he gets down to subtraction, for example, let him take the Republican and Democratic parties, and also the Progressive, and subtract one from the other, and *vice versa,* and he will find he has nothing left but the Socialist party.

Haven't you got head enough on you, and a heart big enough, so that you can see that a man cannot be a strictly honest man and make or become a millionaire? If a man eats his bread in the sweat of his face he doesn't eat it in the sweat of somebody else's.

We are going to have revivals down at the little church among the hills for a while, and I expect to go some of the time, and invite the ministers up, for I am wanting to tell them some things which they don't seem to know. If you want to write any thing about this in some of your papers, do so, and don't be afraid to use my name.

W. E. BOONE.

Traverse City, Mich., March 10.

You will notice, friends, our good brother (for I call all beekeepers brothers) seems to doubt God's providence as well as to lose faith in his fellow-men. The printed matter he asked me to read was much after the style of the letter above. It did not commend itself to me at all. If where he uses the word "dollar" he means to imply that I am myself giving my life in pursuit of the dollar or the dollars, I appeal to the readers of GLEANINGS if this is not unkind and untrue. It is true that God has blessed my labors in many ways, but I think I speak the truth when I say that my life has been spent in an effort to give employment to needy ones, more than to get the dollars for myself. If you could see how Mrs. Root and I live in order that we may have more to give to the cause of missions and other benevolent enterprises, I think you would declare me "not guilty." So far as wanting to "shine" above the rest of humanity, I want to plead *again* not guilty. Yes, friend Boone, I *have* been harping on raising chickens, potatoes, and garden stuff in the back yard; but it has never occurred to me that by so doing we could harm anybody else, as you put it. If you mean that the middleman has been thrown out of business, I reply that he should get out in *his* back yard and grow stuff as we do. There is a plea just now that if Ohio goes dry all the saloonkeepers' business will be destroyed. Let *them* also, with their wives and children, throw away their diamonds and jewelry, and keep chickens and raise potatoes in the back yard.

Just now it occurs to me that I saw in one of the papers that the Socialists or one of the unions, one or both, as a body rejected State-wide prohibition because a great lot of men who belong to the union are employed by brewers, and the union, out of sympathy for these few, could not consistently vote dry.

In my Home talks so far, or so far as I can recall, I have never advised nor even discussed, unless it was very indirectly, the principles of the different political parties. I have held up *prohibition* first, last, and always; but I have criticised the Prohibition party, perhaps more than any other political party, because they did not seem to show a Christian spirit toward other temperance organizations.

The emphatic statement that a man can not be strictly honest and yet become a millionaire, seems to me is pretty severe. If I am correct, our good friend Thomas A. Edison is a millionaire, perhaps several times over; but if any citizen of the United States has ever, during his busy life, assailed Edison's honesty and integrity, I have never heard of it. Every great city, and every town and village, and I might almost say every home, is being blest just now by Edison's discoveries and inventions. When he comes to die I predict he will get the thanks of the people in a way, perhaps, no other one man has been remembered and reverenced. Edison is one of the busiest men the world has ever produced. He hardly takes time to eat and sleep. Even now, at the age of 67, he is giving employment to thousands of workmen; and I thank the Lord that a man of such wealth and influence as Edison has had the courage to come out against the cigarette habit and put his decision in black and white on the front of his factories.

My good friend Boone (for I still wish to call him friend, notwithstanding the above letter) seems to intimate that I have more wealth than I ought to have. Perhaps the readers of this have a right to know that The A. I. Root Co., composed of myself, two sons, and three sons-in-law, are all together worth only about half a million dollars. Divide this sum into six parts, and consider that we give employment to nearly 300 hands, men and women, the year round; then can anybody say we have more than our share when we are expected to carry on and maintain an establishment like ours? On the front of our main building, carved in sandstone, is the motto, "In God we trust." And another little motto that has been in my heart for many a long year, and I am sure it is the motto of every member of our family, the good wives as well, is, "Do good and lend, hoping for nothing again."

MISSIONARY WORK IN NEW MEXICO, ETC.

In our issue for June 15, page 20 of the advertising department, I made mention of the missionary talk by a lady from New Mexico, Mrs. Frances N. Hawkenmeyer (now of Hudson, N. H.). Our printers unfortunately got it "a few *years* ago" when it should read "a few *days* ago." Now, shortly after that journal came out two persons protested, declaring no such thing was going on in New Mexico, etc. The letter was forwarded to the lady herself, and she replied at length, besides sending in a large number of tracts (some of them dated March, 1914) in regard to the mission work in New Mexico. I should be exceedingly glad to give her letter and extracts from said tracts, but it would take too much space. Briefly, there is going on at the present time a sort of worship—I suppose that is what they call it—by a class calling themselves "Penitentes." This custom has been going on for ages among these ignorant and superstitious people. Their idea is that they can commit all the sins they choose for a whole year, and at Christmas time they not only confess their sins but make an atonement, as they call it, by scourging themselves with cactus thorns, etc. After the blood has started they dip their scourges in pails of salt water to make the smart and pain more excruciating. They also bear huge wooden crosses, I suppose in commemoration of the way the Savior bore his cross.

Now, some of you may call this all a "fish story;" but my own brother, some years ago, in a trip to New Mexico witnessed exactly what I have described, and he asked me what it all meant; and he wanted to know if that could be classed among the *religions* of the world. Well, now, these tracts I have mentioned (there are over a dozen of them) describe the change that is being brought about by our missionaries. The transition from superstition and savagery is indeed wonderful; and the pictures illustrating the change from savagery to the gospel of Christ are indeed astonishing.

May God speed the missionaries, and abundantly bless the work that they are doing right here in the United States. It is evident from the letters embodied in these printed tracts that this sort of self-scourging work and carrying of heavy crosses barefoot, over ground covered with sharp flints, is still going on, although it may not be true just now that the crucifixion described is at present going on, for the missionaries (now pretty well scattered over New Mexico) are making such a protest that these deluded people are waking up.

SOMETHING FROM OUR GOOD OLD FRIEND MRS. SARAH J. AXTELL.

I am sure the following will be read with much attention, especially by those who remember Mrs. Axtell's history in the past. As I have made frequent references to her (see p. 695, Sept. 1) no further introduction will be necessary.

Mr. Axtell and I are still plodding on, caring for our little fruit-farm of 18 acres, though much of the work is done in weakness. I am sure if we were to give up work and "move to town" we should not have the strength we now have. We have three acres of blackcap raspberries, and from six to eight acres in peach-trees that require a good deal of trimming, cultivating, etc. The fruit is very large, budded, and sells itself. We let people come here for the fruit, and pick that and the berries. The latter bring ten cents a box, and peaches net $1.00 a bushel.

Our little farm last year, including the bees, brought in about $1900 besides our living. We had only eight hives of bees last spring, as they all died two years ago. We increased them to 16 colonies, and got about 100 lbs. from each of the eight old colonies.

The year they died we had a very large peach crop, and many peaches rotted on the ground; and as there was but little honey in the fall flowers, the bees gathered a good deal of the peach juice and stored it in their hives. As we toiled so hard to save our peach crop and apple crop as well, we were so *worked* out that we did not have strength to extract their combs and give sugar syrup; but we thought that, if we fed quite largely of the syrup, they would use it in winter first, and perhaps not die (as we had done so the year before); but *every colony* died; and some that had only sugar syrup died also. They all seemed drowsy or stupid all the fall and winter.

The bees last summer and fall did not work on the peaches at all. They seemed to gather white honey until frost, and hence they have wintered finely. We have been greatly helped by reading your Health Notes, and we try to follow them a good deal; and Terry's book, too, has helped us much.

If we cannot go to sleep we go to manipulating all over—face, neck, and all—till sleep comes; and if I sleep all night I take some time before arising in the morning. Deep breathing also helps much; and with large jugs of hot water, and a row of them at the back of the bed, which helps us to keep warm, we can have our doors and windows open all night, which I am sure helps us to good refreshing sleep.

Some are afraid to use jugs of hot water for fear of the corks coming out. Yes, *corks* will easily come out; but corncobs used for corks will swell and not come out. We set the jugs on top of the stove with a nail under them to keep them from breaking, and thus they will last several years. If a crock cracks and leaks, and a little milk is put into it and boiled for a while, it will be all right again for months. But:

> "Our hopes are built on nothing less
> Than Jesus and his righteousness;
> We dare not trust our sweetest frame,
> But wholly lean on Jesus' name."

MR. AND MRS. L. C. AXTELL.

Roseville, Ill., April 2.

If I am correct, whenever bees work around cider-mills, or gather the juices from fruit left to decay on the ground, there is more or less trouble in wintering. I would suggest that, if it is a possible thing, the windfalls should be picked up and either be used for making cider vinegar or for feeding to the pigs, etc., and thus avoid as much as possible letting the bees get into the *habit* of working on fruit.

This matter of insomnia among elderly people interests me greatly—not because I am troubled by it, but because Mrs. Root has had trouble in that direction almost all her life. Exercising the limbs just before retiring, giving the body a thorough rubbing, and finishing off with a sponge bath, I am sure is a great help. But I know one often feels too tired, and neglects this; but after the blood is caused to circulate briskly you will forget all about "that tired feeling."

For some time back, as soon as the weather gets cold I have been troubled with cold feet. I have before mentioned that, after a good drying-off, a warming-up of the feet before an open grate is a splendid remedy; but as the nights keep growing colder, a great many times I have been awakened by finding my feet "as cold as a frog," as the expression goes, or perhaps a good deal colder. At times it has seemed almost *impossible* to warm them up. The hot footstone or hot-water jug mentioned will warm only one side; and while that was warming, the other would get cold. I have learned by experience that it is quite important that the feet be thoroughly warmed in some way. Right here comes in another of my "discoveries;" and I know pretty well beforehand that when I tell it a lot of you will say with a grin, "Oh! that is as old as the hills." It is simply this:

When your feet actually *refuse* to be warmed up, put them into a bowl or pail of water as hot as you can bear it comfortably. After I made this discovery I felt like saying to those stubborn and contrary feet, "Tell *me* you *won't* get warmed up, you contrary toes and heels and ankles." The explanation is, that the heat makes a perfect contact all around and all over the feet and ankles at once.

Some of you may suggest that it is lots

of bother; but if "lots of bother" helps to "defer old age" I think we can well afford this bother. Old people especially should have access to a warmed-up bath-room every hour and every minute in the day. Let me say to you younger ones, if your old father and mother have no such arrangement get right about it and fix up one for them. I was going to suggest it as a "Christmas present;" but Christmas is too far away. Make it a Thanksgiving present. Since natural gas was brought to our premises, a little heat in the basement heats the bath water; and in our bath-room there is a little radiator that cost only a trifle, and this is always hot. Now, I do not want *hot* water nor very warm water for bathing all over. Water at about 60 or 70 is to me more agreeable, and I am sure a *moderately* warmed sponge bath is more helpful. Well, after I have been washed and scrubbed all over I put on my night dress and draw off into the bath-tub a little hot water, and stand in it. When both feet are made hot I slip on some flannel bed stockings that cost only eight or ten cents a pair. When I get tolerably well warmed up in body I can easily push these stockings off; and if the weather is very cold we have a hot soapstone for "emergencies."

I have thus gone into details because I know there are hundreds of old people reading GLEANINGS and profiting by every thing that not only helps to defer old age, but which helps us to care for ourselves so we shall avoid as long as possible being a burden on the younger generation. I wish all of our readers would learn to repeat, or, better still, *sing*, the beautiful hymn with which Mrs. Axtell closes her kind letter.

Below is a clipping taken from the *New York Weekly Witness,* which Mrs. Axtell inclosed in her letter:

KICKING THE RHEUMATISM OUT OF BED.

On Tuesday in the Senate, Senator Tillman (S. C.) gave a dissertation on the conservation of health, and describes how he kept himself alive four years after his obituary had been written, and invited them to come to his office for further instruction as to details. He remarked, when he saw some of his audience smiling, that he would bury some of them yet. The four things to which he attributed his restoration to health after a severe paralytic stroke were: careful diet, deep breathing, physical-culture exercises, and drinking hot water (of which he drinks at least three quarts a day). He described his method of exercise as lying on his back and kicking the headboard of his bed. By this means he said he had "literally kicked the rheumatism out of bed."

HIGH-PRESSURE GARDENING

FALL-BEARING STRAWBERRIES, ETC

Last spring I had about a dozen plants, highly recommended, the Superb and the Progressive. For some reason—I rather think improper soil for strawberries—I lost about half my plants. After I got irrigation, however, they took a start, and during October I had some very nice berries. My near neighbor, Mr. Henry Horn, had about 60 plants of the Superb, and he brought me about as fine a dish of strawberries yesterday, Nov. 3, as I ever saw. To-day, Nov. 4, he has a large amount of green berries, some just getting ripe. In the spring he prepared a piece of ground (about ½ acre) for strawberries, and gave it a very heavy fertilizing of bone meal. The season got so late, however, that he did not get his plants put out. To avoid losing the use of the ground he sowed it to purple-top flat turnip, and just now he is pulling and selling a most prodigious crop of beautiful turnips. One of them weighed fully 11 lbs., and measured 32 inches in circumference. When I suggested that it was the heavy application of bone meal, he said that when he pulled them up he found the bone meal adhering to the roots. We have just had a part of one for dinner, and the quality is excellent, even if they are so large.

Just a word more about fall-bearing everbearing strawberries. It has now been pretty well demonstrated that just as nice berries can be grown in the fall, especially when the frost holds off, as in the summer time. It has, however, been suggested, and I think with some weight, that people will not be so eager to buy the berries, no matter how nice they are, when peaches and other kinds of fruit are so plentiful. Strawberries come in May and June, and are about the very first fruit, when there is almost no other fruit to be had; and yet strawberries grown in Florida, so as to be ready by Thanksgiving, are often sold at high prices. It looks now as if we should soon be able to have *strawberries every day in the year.*

FROM THE FLORIDA HOME.

We have just had a beautiful rain, and our garden looks fine. We have four trees of oranges, one of tangerines, luscious persimmons, kumquats, and one big pineapple —*our own growing*—paypayas (muskmelon tree) galore, one 19 inches around and a foot long, and not done *growing* yet. There may be 100 bushels of dasheens and cassava "too numerous to mention." Our 56 chickens laid one egg yesterday and *two* to-day. You see they are on the "up grade." Ducks are doing about the same. You see they were all waiting for the "boss" to arrive and give them "inspiration."

POULTRY DEPARTMENT

CHICKENS IN FLORIDA; BUTTERCUPS, ETC.

When I said we got only two eggs a day I omitted mentioning that eggs here are 50 cts. a dozen and scarce at that. Even duck eggs bring 40 cts. I found only two duck eggs, but Wesley went after me and found eight more in the same nest, covered up, so the ducks are not doing so very badly. To-day, Nov. 10, we got six eggs. Neighbor Abbott was just over, and he says he has two Buttercup pullets that laid 53 eggs in October, or 26½ eggs in 31 days. Mrs. A. thinks they did nearly as well in September, but no count was made. When I asked about moulting he said they had not moulted yet. I forgot to ask their age, but very likely they were hatched so late they will not moult this season, and here is a hint: If we can have young pullets laying when the older hens are moulting we can get the big prices, even if the eggs are a trifle small. Should I give the above without explanation, it might look like a boom for the Buttercups. Let me mention that the prettiest Buttercup hen in our yards is a very poor layer, yet she is always following me around in the yard, and "wanting to talk," but she lays only once in three or four days, apparently. Pullets of any non-sitting strain can be hatched so as to lay during moulting time.

INDIAN RUNNER DUCKS IN FLORIDA.

I have said so much in favor of the Indian Runner ducks that I felt loth to report that when eggs were down to 20 cts. last April no one wanted duck eggs here in our market. It was no use to say they were "just as good," and "much larger" than hens' eggs, etc. Nobody wanted them. I managed, however, to get about 15 cts., but after I was gone Wesley reported no one wanted them at all. Then I wrote him to sell the ducks for whatever anybody would give; but he replied no one would give any thing for the ducks. The women said they were "hard to pick," etc. As I have told you, I found it hard to own up all this after I had praised the ducks so much. Now, this isn't all. Soon after he said the eggs wouldn't *sell*, he wrote it didn't matter; for when the hot weather came on they all *stopped laying*, and this was the condition of things when I reached here Nov. 7. I found hens' eggs 50 cts., and few or none at that price; and even duck eggs were in demand at 40 cts. As the hens are about all in full moult I couldn't get *them* to lay; but the duck doesn't seem to mind moulting time, and I am now getting six eggs a day from 12 ducks. Where are the rest of my big flock, do you ask? Well, the *alligators* decided if nobody else wanted ducks *they* wouldn't mind having a few, and they took *all* of Dr. Morgan's, and about half of mine. *Moral.*—Just now, while duck eggs bring *40 cts.*, my ducks are not for sale; and shall we not keep ducks just to have eggs in moulting time?

EGGS FROM CHINA, ETC.

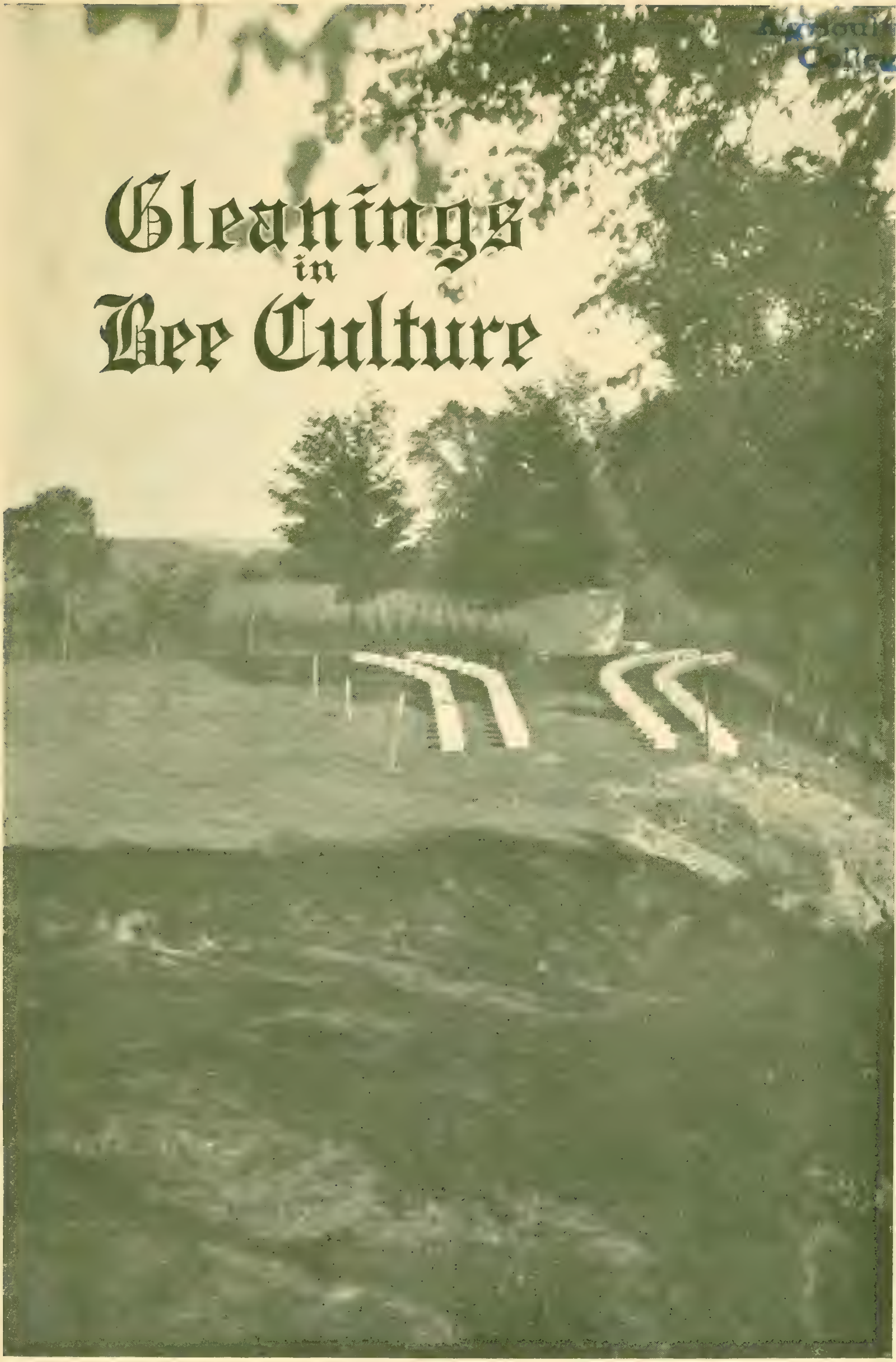
Not only do the Chinese succeed in producing eggs cheaper than we can here in America, but I suppose we shall have to admit that they succeed in getting them here to the United States, especially on the Pacific coast, in very fair order so as to compete with home-grown eggs. Good honest authorities have declared the Chinese eggs compare very favorably with the cold-storage eggs of our large cities. Just now I found the following in the *Pacific Poultryman:*

> LABEL THE CHINESE EGGS.
>
> A recent item in the daily press stated that a customs inspector had held up a shipment of Japanese toothpicks because they (each toothpick) was not labeled "made in Japan." The importers protested to Washington, and we are still awaiting the government's decision. If the customs inspector is upheld, the rule should also apply to imported Chinese eggs.

The above is a pretty good joke in regard to the toothpicks. No matter if the Chinese eggs *are* just as good as those in cold storage, the consumer has a perfect right to *know* if the eggs he buys are brought from China. Then he can decide whether or not they are just as good as the home-grown cold-storage eggs. Of course the Chinese eggs should go at a lower price. There is still another point to be considered: If these imported eggs are equally wholesome, may they not be a benefit to poor people? I hope and pray that the present war will not prevent China or any other nation from being benefited by honest traffic across the seas.

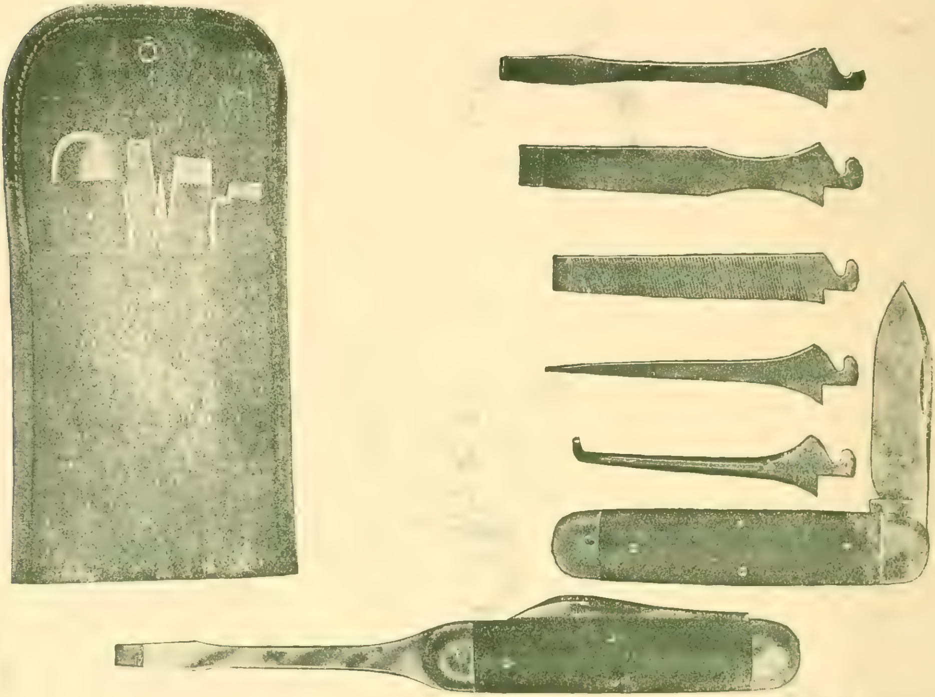
DEC 26 1914
Agricultur
College

Gleanings in Bee Culture



Vol. XLII DECEMBER 15, 1914 No. 24

Perfection POCKET-KNIFE TOOL-KIT



Knife with Steel Tool blade in Place Ready for Use.

The Perfection Pocket-knife Tool-kit, a handy, useful, and compact **Tool Outfit** is made up of a big four-inch heavy genuine cocobolo double-bolstered handle, 2½-inch tempered steel-blade jack-knife, and FIVE highly tempered blued-steel tool-blades, consisting of screwdriver, chisel, leather punch, flat file, screwdriver end, and cork-puller. The tools are so constructed that each one fits into the knife-handle, and opens out like a knife-blade, being held securely by the spring of the knife. A most complete and serviceable tool. It comes packed in a neat leatherette pocket-case as shown above. Exactly the kind of oufit that every beekeeper needs with him in the apiary.

Premium Offer

We will send this TOOL-KIT postpaid to any reader who sends us ONE **NEW** YEARLY subscription to GLEANINGS IN BEE CULTURE with remittance of $1.00, or the same for FOUR **NEW** subscriptions to GLEANINGS IN BEE CULTURE for six months each at 25c each.

Canadian postage on subscription for one year, 30c extra.

Canadian postage on each trial subscription, 15c extra.

The A. I. Root Company, Medina, Ohio

Gleanings in Bee Culture

Published by The A. I. Root Co., Medina, Ohio

A. I. Root, Editor Home Department
H. H. Root, Managing Editor
E. R. Root, Editor
J. T. Calvert, Business Manager
A. L. Boyden, Advertising Manager.

Entered at the Postoffice, Medina, Ohio, as second-class matter

VOL. XLII. DECEMBER 15, 1914 NO. 24

Our Index for 1914

The reader's attention is particularly drawn to our index for 1914, covering all departments. There are about 3000 references, showing that Gleanings covers a wide range and a great variety of subjects. Do not throw this index away nor these copies of Gleanings for 1914. A single reference may save hundreds of dollars. During the long winter evenings a beekeeper can well afford to glance over this index and pick out topics he has skimmed over during the busy rush of the summer.

Snow for Closing Entrances when Putting Hives into the Cellar

The short snappy cold spell referred to in our last issue, almost before the ink was dried, gave way to a warm spell accompanied by rain and snow. We are putting our bees into the cellar to-day, Dec. 8, closing the entrances with light fluffy snow. Snow is an excellent thing for the purpose—the best in the world. No attention need be paid to it, for it will soon melt away after the bees have been placed, but not before they have quieted down for their long sleep.

Our Cover Picture

At our Ault yard, west of Medina, we formerly had the hives arranged on the sidehill as shown on the Sept. 1st cover for 1913. In addition to the shelter afforded, our idea was that the hill was so steep that no fences would be necessary to keep the cattle away. However, the cattle did not seem to notice the inconvenience as much as we did ourselves. Accordingly during 1914 we had the hives arranged on the top of the hill as shown on our cover for this issue. We concluded that we could buy wire fencing cheaper than we could operate those colonies on ground so steep that while the back of the bottom-board rested on *terra firma* the front end had to be supported on stakes over a foot high.

Feeding Colonies in Mid-winter Outdoors and in the Cellar

We would call particular attention to an article by F. P. Clare, on page 986 of this issue. Our experience in feeding for winter late in the fall indicates that he is right. As a general proposition, however, late feeding or winter feeding should be avoided if possible; but we have repeatedly fed up apiaries just before cold weather set in by feeding a *thick hot* syrup—almost hot enough to scald the bees' feet. The heat generated will keep the colony warm until the feed is all taken down.

Syrup for late feeding should be made very thick—don't forget that. We never tried a syrup as thick as that mentioned by our correspondent, but see no reason why it would not give excellent results provided honey is used with it to prevent its hardening and going to crystals.

Many and many a colony, owing to the warm weather that has prevailed generally throughout the country until late fall or early winter, would be short of stores. A colony that is liberally supplied in the month of September will often use up a large part of its supply in brood-rearing. It is astonishing how the stores will disappear after a spell of breeding. Late breeding is a good thing in that it supplies the colony with vigorous young stock. It then becomes necessary to feed up to supply the deficiency.

Those Carload Shipments of Bees to Virginia; Breeding and Dysentery as a Result of Moving

The second carload of bees that was sent to the Dismal Swamp, Virginia, Nov. 16, arrived in excellent condition. When they were set out after their flight it was observed that a certain set of colonies showed symptoms of dysentery. On checking up it was found that these were the colonies that were fed up on Porto Rican honey during the month of September and the fore part of October. The other colonies that gathered only natural stores from the swamps showed no spotting of the hives. The only explanation we have to offer is that the Porto Rican honey may possibly be the cause. Or this may be true: That *any* fed honey would do this when sugar syrup would not. If any of our correspondents can throw any light on this matter we should be glad to hear from them. But we may say that the Porto Rican honey fed was of good quality; in fact, practically all the honey shipped from that island is suitable for table use.

The first carload of bees that started Oct. 20 are doing good work. The sealed brood has hatched out, and the colonies have made substantial gain in strength. The addition of young bees ready for the nectar and pollen will be a great help.

In both carload shipments it was observable that the shaking up, loading, and unloading *en route* started the queens to laying in all the hives. By the time the shipments arrived there were eggs and larvæ to be seen in all the hives. Taking it all in all, the Virginia experiment so far is more than coming up to our expectations.

This " shaking up " when bees are moved long distances from one cellar to another might not be such a good thing; and yet as we have before explained we have handled brood-rearing in our cellars to advantage.

Death of one of the Veteran Beekeepers Whose Name is Almost a Household Word in Beedom

It has been our practice at the close of the year to chronicle the names of prominent beekeepers who have died during the year. It had begun to look as if the year 1914 would not claim any one of great prominence. But as the last days of the year were passing, no less a person than T. F. Bingham, of bee-smoker and honey-knife fame, passed away at Sugar City, Col. Indeed, the name of Bingham has been in every bee journal and every bee-supply catalog for nearly half a century.

He was not only a good beekeeper himself, but one who was capable of devising short cuts, developing new ideas—yes, going even further, making inventions that caused no little stir in the bee world. Among the number might be mentioned his divisible-brood-chamber hive. While it was never called by him under that name, it was a shallow hive that could be and was worked by him on the divisible-brood-chamber plan. It was much the same hive that was later perfected and patented by the late James Heddon.

During all the days the divisible-brood-chamber hive was being exploited and its priority discussed in the 80's we find our old friend taking no hand in it, notwithstanding he was really the inventor of the closed-end frame and the divisible-brood-chamber principle, both of which were basic ideas in the Heddon patent, and around which there was so much bitter controversy from 1885 to 1890; but the records all go to show that Mr. Bingham worked his hive and frame for years and years prior to Mr. Heddon's use of it.

Another of his inventions was the bee-smoker. While Moses Quinby was the first to bring out a bellows smoker, Bingham was the first to develop a practical device that would hold fire and not go out. He and his partner, Mr. Hetherington (a brother of the late Capt. J. E. Hetherington), brought out the Bingham and Hetherington honey-knife, the basic principle of which was a thick blade with beveled edges and an offset handle.

Mr. Bingham made a success of indoor wintering. He built a bee-cellar that was of the nature of a big cistern, wholly submerged beneath the surface of the ground. He developed a scheme for ventilating it, through an upright shaft, that was quite unique. He wintered his bees in this particular cellar for years and years with remarkable success. A description of it is given in several editions of the A B C and X Y Z of Bee Culture. In later years he perfected his earlier bee-smoker; and it is to-day one of the standard tools sold by all dealers.

Mr. Bingham never wrote very much for the bee-journals; but we find now and then an article from him. He was usually present at the Michigan conventions; and while he took no very active part in the discussions, yet what he did say was brief and to the point.

We shall not soon forget a very delightful chat with him in connection with the late W. Z. Hutchinson, immediately following one of the conventions a few years ago in Lansing. During the course of that interview we discovered that the subject of our sketch was not only a practical beekeeper, but one who had given the science of beekeeping no little consideration. He was a charming conversationalist; and one would not be in his presence very long without feeling that he was with a cultured gentleman—one who was a master of the business.

Mr. Bingham died at the ripe old age of 84. An active business man as was the subject of our sketch, who could live during these strenuous days three score years and ten, and then go it better by nearly another score, deserves no small amount of credit. To do such a thing, when nearly every one else is living too fast, and eating too much, is no small credit to the man, even if he had not distinguished himself by his advanced ideas and inventions. It is right living that makes such things possible. Young men will do well to remember that.

Invert Sugar vs. Cheap Honey for Manufacturing Purposes

THOSE who have been selling their cheap honey to the bakers have learned during the last year or two that they have had a serious competitor in the form of an inferior product known as invert sugar. Chemically, honey is invert sugar; and all invert sugars, whether natural or artificial, have a peculiar quality when used in cakes and cookies that makes them keep soft and moist much longer than if cane sugar alone is used. A large part of the products containing any sweet sold by the large baking concerns contain some invert sugar or honey. Without one or the other they will not keep very long—that is, they will become hard and dry. Up to within a year or two honey for the purpose had no competitor, and it was used by the carload.

Within comparatively recent times the chemist has discovered a process for inverting common cane sugar, so that the product could be made and sold for less money than some of the cheaper grades of honey. When honey was cheaper than commercial invert sugar, honey was used instead; but as a general thing the bakers found that the artificial product could be secured for less money, and so they have been using it instead of honey. But in making cakes and honey jumbles they continued to use the natural product—the cheaper grades of honey—because of the flavor; and right here invert sugar is flavorless, and therefore can not quite take the place of honey.

There is no great loss without small gain somewhere. The war in Europe has brought disaster in its wake, and has caused the cheap honey of South America and the West Indies to flow into the United States, and to depress further the market for our domestic product which was already ridiculously low. But now for the compensating feature:

The war that brought cheap honey into the United States also caused the price of cane sugar to take a sharp advance. It went so high that the makers of invert sugar had to shut up their factories for the simple reason that honey, a natural invert sugar, could be bought for far less money than the artificial product, invert sugar. With sugar at seven to eight cents, it was impossible to sell invert sugar for less money than cheap honey; and so, naturally enough, the manufacturers had to go out of business, or at least so long as the war holds up the price of cane sugar. The beet-farms of Europe have been destroyed. Seed for sugar beets came almost entirely from Europe; and next year there will be no seed, so it is said, except at extravagant prices. That means that, even though the war is over by next summer, there will be no beet sugar raised for two or three years to come. In any case, it is a safe guess that granulated sugar will not go down to normal, although it has declined some; but it can't stay down long, and that means that the beekeepers of the world are not going to have, for the time being at least, the competition of invert sugar. If this be true the influx of South American and West Indian honeys will not depress the price of the American cheap honeys, because it will just take the place of the markets that formerly were supplied by artificial invert sugar; but as soon as cane sugar finds its normal level of cost, it will be possible to make invert sugar again. By that time, on the other hand, cheap honey will have found an outlet in Europe as before.

It is possible that invert-sugar manufacturers, after they have been shut down for two or three years, will not resume operations again. In the mean time the war goes on, with no immediate prospect of a cessation of hostilities. Cane sugar is still much above normal, and will stay there. In the mean time we should begin a campaign of education to develop the fact that honey is cheaper than sugar for canning. We should show that honey is better because it has *flavor, and superior qualities as a preservative.* The war is costing the world millions and billions; but, as we said at the outset, there is no great loss without some small gain. Let us seize the opportunity that is now presented; for it is to be hoped it will never come again in the form that it has.

Standardizing Honey as a Food

WE all know that America consumes a vast amount of honey—vast when quantity alone is considered without reference to the amount consumed per capita of population; but does it, for its own good, consume enough of that delicious and wholesome sweet, and cannot the average be raised?

There is a certain market for what honey is now produced; but compared with the population of the United States that market is only in its infancy—it is capable of enormous expansion.

In considering the possibility of this expansion there need be no question about supplying the increased demand. Production can be increased with no trouble at all to keep pace with demand—*that* goes without saying.

Now, then, how is the demand to be increased? Every beekeeper in this country has an interest in this question, and should be glad to help solve and see solved the problem, not just of increasing his own individual market, but of enlarging the general market; for the more universal is the honey market, the more certain are all to profit.

To arrive at the proper basis for answering this question of increase let us go into the subject from the standpoint, primarily, of *why* it is that comparatively so little honey is used.

The first and most natural answer to that question lies in the word ignorance—ignorance of the food value of honey. There has come about a gradual general forgetting on the part of the present generation of all that honey means in deliciousness and wholesomeness.

In our opinion, this has been brought about by two things—first by the gradual shifting of the bulk of the consuming population to the big cities and the consequent getting away from nature and natural foods to the more artificial life and foods which belong to city dwelling. The second cause, undoubtedly, is the big advertising which has been and is being done by the sugar-refiners and the makers of all kinds of syrups—cane and corn. This advertising has steadily and forcibly directed the attention of the consumer from that choice product of nature, honey, to the flavor, packing, and supposed deliciousness of sugar and syrups, the good points of which it has heralded with such art and persistence that to-day the average consumer thinks of sugars and syrups alone when he thinks of sweets.

Then it stands logically to reason that the only way to bring the bulk of the American people back to honey, and to make converts to the use of honey of those people who nowadays never give it a thought, is to bring honey forcibly and persistently to their attention; in short, to lift them out of their ignorance, as it were, by an educational campaign of advertising which will convince them that the most wholesome of all sweets is honey; to tell them that the inimitable flavor of honey is a palate pleasure they are robbing themselves of unless they use honey freely—on their bread, waffles, etc., and to show them that, for many cooking purposes, nothing in the world of sweeteners can compare with honey from the standpoint of flavor, keeping qualities, and economy.

We all know that, once the average person is acquainted with honey goodness, it is almost a certainty that *that* person will continue to eat and use honey. We all know the vast influence of advertising in persuading the big general public to do what you want them to do—*provided* the thing you want them to do and the goods you want them to buy are based on honesty and quality. But *who* is to do that advertising? who is to be the pioneer in opening up the wilderness, to the profit of all producers of honey? It would hardly pay all the honey-raisers to try to get together on such a campaign. The *pro rata* of expense would be an infinitely difficult task. Yet, in the interest of all, this advertising is almost a necessary thing.

An attempt at the solution of this problem is being made by the publishers of this journal. Through their efforts, and at their expense, a strong, persistent, and consistent honey-advertising campaign has been planned, and is being put into operation. As is generally known, the A. I. Root Co. has now, as it has had for many years past, large apiaries of its own. It will be remembered, also, that Mr. A. I. Root is one of the pioneers in the production and marketing of extracted honey; and since his marked success in this field, beginning nearly forty years ago, the apiaries of Mr. Root and the A. I. Root Co. have been prominent features in their general business. In addition (this is a most important feature to consider in connection with this campaign) they are large marketers of the honey outputs of other apiaries (their friends and customers) from all over the United States. Thus, being known to distributers of food products as a big source of honey supply for the general market, both under their special brand of select honey known as Airline, and with bulk or unbranded honey, they are in the very best position to benefit all honey-raisers by advertising honey generally.

A Retrospect for 1914

No great floods or snowstorms struck 1914 as they did in 1913; but 1914 will go down in history suffering a calamity far worse than floods, storms, hurricanes, and earthquakes all combined. If the whole of Europe were shaken by an earthquake the destruction of life and property could not be worse than what the "Great War" has wrought already. But what has the war to do with apiculture? A great deal. It has affected the honey market. It has cheapened the lower grades especially because the South American and West Indian product that formerly went to Europe is now dumped into this country to the sorrow and dismay of many beekeepers south and west. Some of it has been sold in New York as low as 42 cents a gallon after paying 10 cents duty, freight, and package. But fortunately such a low price could not maintain long. But the low prices for the imported article are affecting the market in many parts of the South. It is hoped the check will not be as great as was feared.

As a partial offset the war has increased the price of sugar; and this naturally has a tendency to increase the price of all honey, provided, of course, honey can compete for manufacturing and canning purposes, as it has done in many cases. This has created an outlet for some of the cheap honey that would otherwise have been a glut on the market. The war has also eliminated the competition of invert sugar that the bakers have formerly used in place of honey. It cannot now be manufactured, owing to the increased price of granulated sugar. Taking every thing into consideration, it is to be hoped the market on cheap honey has not been hit as hard as it might have been.

During 1914 the Government demonstrated that its chemists could detect the adulteration of honey with invert sugar. Now, invert sugar comes the nearest to being artificial honey of any thing that was ever put out. Chemists everywhere up to this time knew that it reacted about the same as pure honey, and were fearful they would not be able to detect its presence when mixed with honey; and apparently the old adulterators, who formerly used glucose, were of the same opinion. But the Government chemists got busy, and worked out methods for detecting the presence of invert sugar. So successful were they that one party was found guilty, and paid his fine.

The average beekeepers of the country may not realize the importance of this achievement in chemistry; but had not the Government scored a victory in this case, large quantities of bottled honey would have been adulterated with invert sugar. Mr. W. A. Selser, our chemist and manager at our Philadelphia office, regards this as one of the most important victories the Government has ever won for beekeepers, for it nipped in the bud, before it had hardly got under way, a form of adulteration that would have been serious.

The year 1914 will go down in apicultural history as the greatest year for the manufacture of bee-supplies in all the factories that was probably ever known. The record-breaking honey year of 1913 cleaned up all supplies on hand, and the prospects of 1914 were extraordinarily good at the beginning of the season, because bees had wintered well everywhere. But the bright prospect did not materialize in a big honey crop. Throughout the clover districts in the northern part of the country, the season came very near being a failure. The West and some parts of the South, however, furnished nearly their usual quota of honey.

In the line of special legislation affecting the bee business, the national net-weight law stands out prominently as the product of 1914. It has already caused some hardships and inconvenience to the producers of comb honey, and many of them say they will quit the business and run for extracted. The elimination of the section or wood surounding the comb is the source of complaint. It is contended that the wood is part and parcel of the package, always has been weighed in, and that on account of its varying weight it is impossible to get at the exact weight of the comb and honey inside. It is further contended that the ruling of the Bureau of Chemistry is unfair because it permits the wrapping around hams to be weighed in with the whole ham, but excludes the wood around a section of honey.

It has been our opinion right along that it was useless to buck against the inevitable, and that the operation of the net-weight law will in the end be beneficial. Under its provisions only comb honey properly graded can be marketed.

In the line of State legislation there have been no foul-brood laws passed so far as we know. Notwithstanding that, during 1913 ten States have passed such laws.

The year 1914 witnessed the installation of at least one new school of apiculture in the United States. We refer to the one established in Minnesota. This school has an annual appropriation of $5000. Of this amount $2000 goes to the enforcement of the foul-brood law, and $3000 to establish and maintain a division of apiculture. Minnesota is the only State in the Union that has such a division in beekeeping not connected with some other department for instruction. Rev. Francis Jaegar was appointed by the Board of Regents of Minnesota to take charge of the work; and, so far as we can ascertain, he has done good work.

Another school has been established at the Agricultural College at Ames, Iowa. While this is on a much more modest scale than the one in Minnesota or Massachusetts, yet a beginning has been made.

Instruction is also given in apiculture at Stillwater, Oklahoma, under Prof. Sanborn, and at College Station, Texas, under Prof. Wilmon Newell.

In the mean time the apicultural school in charge of Dr. Burton N. Gates, of the Agricultural College, Amherst, Mass., is pushing ahead. It has done some splendid work, and during 1914 it entered on some new fields of investigation which have been referred to in these columns. The same is true of the school at Guelph, Ontario, Can., in charge of S. T. Pettit.

During the year 1914 Uncle Sam established permanent headquarters in a building and grounds devoted exclusively to bee culture at Drummond, a suburb just outside of Washington, D. C. All this is in charge of Dr. E. F. Phillips. He and his able assistants have done excellent work the past year in the line of diagnosing bee diseases. This is worth all it cost, even if they did nothing more.

But they have done a great deal more. During the past winter Dr. Phillips and his assistant Mr. Demuth conducted a series of experiments in wintering that were exceedingly valuable. The result showing the temperature of the winter cluster was given on page 879, November 15.

The year 1914 has seen some unusually extensive operations in migratory beekeeping. The A. I. Root Co. sent one carload of bees to Florida and brought back three and one half. They also sent two carloads of bees to the Dismal Swamp, Va., and in the mean time the Marchant Bee and Honey Co., with headquarters at Canton, O., and Apalachicola, Fla., has sent another carload of bees to Apalachicola.

Migratory beekeeping, or sending whole yards of bees by the wagon or truck to the swamps, has been practiced to some extent this year. Considerable attention has been devoted to the feasibility of keeping bees in and near swamps after the main honey-flows are over. While the publishers of this journal did, perhaps, the most extensive work in this line during the past year, others have been trying their hand at it.

In the line of improvements and inventions we might mention the gearless friction-drive honey-extractors. This will doubtless supplant all other forms for power-driven machines.

The year 1914 shows a still further tendency to run to extracted honey rather than comb. The operation of the net-weight law will augment this tendency very considerably. This is a mistake. Extracted honey is getting lower and lower in price, and comb honey is more than holding its own. If a considerable number of comb-honey producers change over to extracted they will regret it. The fact is, there should be more comb-honey producers. The net-weight law will produce no hardship if we only make up our minds to comply with it; and the fellow who does will have no trouble in disposing of his crop.

During the early part of the year 1914 there was an unprecedented demand for queen-bees. In the month of March there was scarcely a queen-breeder who could fill half the orders. During July and August those same breeders could have reared twice as many queens if they had had the orders for them. The business is being overdone in the latter part of the season and underdone in the fore part. The breeders of the South should get busy earlier.

The year 1913 seemed to set its seal of approval on the A. C. Miller smoke method of introduction; but 1914 seems a little inclined to raise a question of doubt as to its reliability.

The year 1914 has been kind to us in that it has taken only a very few prominent beekeepers. First and foremost, without question, was Mr. T. F. Bingham, of smoker fame, dying at the ripe old age of 84. See another column.

Dr. John Phin was another man taken within the last year. While not known generally as a practical beekeeper he was the author of a number of industrial books on various lines both practical and scientific, including a dictionary of bee terms.

F. B. Cavanagh, of Hebron, Ind., a director in the National Beekeepers' Association, and one who produced large crops of honey, also died within the year. He was a brilliant beekeeper; and had he lived he would have practiced migratory beekeeping on a large scale. He not only produced large crops of honey, but sold it all direct to the consumer, for he did a large bottling business.

Aaron Snyder, of Kingston, N. Y., was another beekeeper and honey-salesman who died in 1914. He wrote more or less for the bee journals, and was well known in his part of the State because he came directly in touch with the consumer with his honey.

This reminds us that the bottling of extracted honey is now being carried on on a larger scale than ever before in the United States. Several large bottlers are engaged in the business of putting up extracted honey in glass and tin. Honey in the liquid form is now reaching the consumer in larger quantities than it ever did before.

Taking it all in all, there has been a steady gain in knowledge and progress in every thing connected with the bee business. While the great war is giving us a setback, it is not without its compensating advantage.

Dr. C. C. Miller

STRAY STRAWS

Marengo, Ill.

The year 1914 was the worst honey year in 50 years in Germany. Same here in a good many places. [The year 1915 will be another bad year, not only for beekeepers of Germany, but for all Germany, unless this awful war lets up.—Ed.]

T. B. Terry tells about the warm drink he uses, *Practical Farmer*, 206, and says: "I use extracted honey instead of sugar, as it is more wholesome." I wonder how many beekeepers are as wise as Terry. If all the people used honey in hot drinks it would take tons and tons of it.

"The temperature at the center of the cluster increased as the outside temperature decreased, due to the crowding together of the bees in cold weather," p. 903. Isn't it increased activity and consumption rather than crowding? Incidentally, this fact that the colder outside the warmer the center of the cluster explains why it is that breeding begins earlier outdoors than in cellar.

Right you are, Mr. Editor, in saying that beekeepers are constantly inventing things that are old, p. 877, and one instance occurs on the next page. I saw quadruple winter cases used on a large scale 25 years ago within 25 miles. [The quadruple winter case was not mentioned because it was new, but because it was an old device that had been coming into prominence during late years. The late Edwin France and some before him used quadruple hives; and the old files of the *American Bee Journal*, if we remember correctly, show the modern four-hive winter case.—Ed.

Dr. Bigelow, I believe I'm your friend, and I want to offer a word of advice. Don't you ever again run the risk of such a fool thing as you describe page 930. [We have done nearly the same thing, and we believe we can do it again. We always caution our audience, and make sure that the bees are *thoroughly disorganized.* Throwing bees into the air will do that to perfection, especially if their hive is obscured by a big crowd. All that Dr. Bigelow said is possible, but we would not go quite so far as he did with the average bunch of girls. We sometimes select two or three people to show that they can do the same stunts we do.—Ed.]

Jacob Alpaugh, you don't tell us the thickness of foundation you use in putting in splints, p. 941. I should suppose it must be pretty heavy to bear such cutting. If you can get combs built to the bottom-bar with splints only two-thirds length, there is a saving, and painting with wax helps. But what I can't understand is your "spoiled row of cells" when using the Miller plan. In all the years I've used the plan, in all the thousands of cells I've seen built over the splints, I don't remember seeing a single spoiled cell. Looking close at a frame of sealed brood, you will see a slight elevation of the cappings over the splints, but never a cell missing or imperfect on account of them. What can possibly make the difference between us?

G. M. Doolittle, you say, p. 841, that where queenless bees are made to start queen-cells from brood given, "they generally err by selecting one or more larvæ for the purpose that are too old to produce the best queens." I wonder if your queens have really so much poorer judgment than mine. I'm sure that my bees do not *generally* err in that way, and I very much doubt that they ever do. I've tried about all the different ways of rearing queens, have reared hundreds by allowing the bees to make their own selection from brood of all ages, and these last have given just as good results as any of the others, and I think just a wee bit better. For me to destroy all sealed cells in four or five days would be only at a loss. I wonder what's the shortest time ever known from dequeening till the hatching of the young queen.

The Editor tells, p. 919, about my being caught with my bees outside and wishing they were in, yet hoping against hope a warm spell might come. Yes, day after day it was 4 to 20 above, with the hope of a warm day growing fainter every day. Nov. 21 a very few bees flew. Nov. 24, 10:15 a. m., it was 44 degrees with hazy sunshine. I went the length of the apiary and saw *one* bee flying. Oh! but I felt good. I knew there was "more to follow." It went up to 52, and the bees had a glorious flight. Next day it was 58, and the next 61, and there wasn't another cold day in November. Today, Dec. 1, it is 59 and rainy. So by leaving my bees out I came out a long way ahead. But—but, *if* the warm spell hadn't come! If it were to do over again—well, I don't know which way I would decide. [You have described our situation exactly, only that our temperature did not drop down as low as 4 above. Like yourself we have been having beautiful weather, and the bees have had good cleansing flights; but just as soon as it turns cold again those bees will go into the cellar with a hustle.—Ed.]

BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

At this writing we are able to say that Pres. J. W. Ferree, of the State Association, has greatly improved from the result of his mortorcycle accident, and is able to be back on his ranch. His ultimate recovery seems assured, though he is still under the care of a physician.

* * *

Destructive forest fires were reported from four southern counties last week. These fires are in reality not forest fires, but brush fires. As a rule they cover only the brush-covered hills. Occasionally they get into the heavy timber of the mountains, but not frequently.

* * *

Mr. Crane, page 883, Nov. 15, you are right in your eighth paragraph, as a rule. But the colony that produced the most honey for me the past season was about as near pure nothing as any in my yard, and would be a poor one to breed from in a land of disease.

* * *

A kindly old gentleman from the remote districts of the South applied to me for a job with the bees. I asked him if he had had experience in their care. He said, "No, I ain't had no truck with them to brag about; but I reckon I can swarm them and keep things in kelter just about as good as anybody."

* * *

Reports from various localities indicate that both varieties of foul brood are much less prevalent than last year. We hope the beekeepers have taken advantage of the opportunity to get pure stock in their yards, which is the best possible way to eradicate black or European foul brood, and no disadvantage in controlling the American variety.

* * *

"Shall I build my own hives?" asks a headline. The average beekeeper should not undertake the work. The results, as a rule, are very far from perfect, and too often botched, which puts me in mind of what a brother-in-law once said. He was working in his shop when some one brought in a piece of work that looked pretty bad, with a request for him to work it over. He viewed the job critically, and then said: "Well, that looks as if some one had done it himself." I know of one small lot of bees that belong to a carpenter's son, and are for sale. But the hives, though made by hand and by a mechanic, are so far from being the equal of machine-sawed hives that his price is out of the question. This is especially true of the frames.

* * *

Skunks, skunks, skunks. The eastern beekeeper has little idea of the depredations committed on an apiary of the West by these troublesome little animals. During August, while away in the East, some of my hives had depressions two and three inches deep worn in the dry soil by their feet, rolling bees to kill them, after which they were eaten. Upon my return I purchased a pound of cheap beef, which I cut in pieces as large as the end of my thumb. In these pieces I cut a small opening with a sharp penknife into which I dropped a small quantity of strychnine. About thirty pieces were thus prepared for the feed, and the result was that the next time I visited my apiary it looked like a slaughter-pen—dead skunks in every direction. This ended my trouble for the season. I have previously recommended eggs for this work, but find that raw beef is equally good, and somewhat cheaper.

* * *

Mr. Doolittle, in the Oct. 15th issue, raises the question as to whether bees visit more than one kind of flower on a trip. I cannot say that I have ever seen them make the change, yet I feel sure that they must do so at times. To illustrate my point I will refer to the rapid change of the field force of the hive from the wild alfalfa to the sage bloom. On a cool foggy morning the wild alfalfa will be swarming with bees for several hours, from which they go immediately to the sage as soon as the sun comes out warm and bright, which causes the sage to secrete more freely. I cannot persuade myself to the belief that each bee with its sac more or less filled with honey from the alfalfa returns to the hive before going in quest of the nectar of the sage. The bee, as a rule, utilizes time as economically as does man, and would hardly return to the hive half loaded with stores because it wished to go to a different flower. Some claim that bees do not mix the different colors of pollen in the combs. This, to my positive knowledge, is an error, for I have observed the different colors many times in the same cell.

J. E. Crane

SIFTINGS

Middlebury, Vt.

After three or four poor years in succession, that cover picture for Oct. 1 looks pretty good, even if it is the other side of the earth.

* * *

GLEANINGS for Sept. 1 is certainly a special number on wintering. It came just in time, too, to set us to thinking, and to give us a chance to lay our plans for trying experiments or improved methods before it is time to place the bees in winter quarters.

* * *

Mr. Byer's experience in wintering small colonies on three combs, page 675, Sept. 1, shows the value of the close-fitting division-board and a hive or brood-chamber the size of the colony to be wintered. I am more and more convinced that we have not emphasized the reduction of the brood-chamber to the size of the colony as we should.

* * *

Those pictures of field meets and picnics in the Oct. 1st issue are refreshing to us who live on this side of the great beekeeping world. My! but wouldn't I have liked to be at some of them? What days those were at Medina and Des Moines, as illustrated on pages 766 and 767! Queens that will produce workers that will not do their best after such gatherings ought to have their heads pinched.

* * *

On page 671, Sept. 1, our friend Hand pours a whole boxful of woes from dysentery to European foul brood upon cellar-wintered bees. Now, if he had stated this as his *opinion* he would doubtless have told the exact truth. There are cellars *and* cellars; and my opinion of them is that they are very much like the maid of nursery fame whose "hair hung right down on her forehead, and when she was good she was very good; but when she was bad she was horrid."

* * *

Mr. L. W. Wells, page 682, Sept. 1, advises feeding bees for winter a syrup 2½ lbs. sugar to one of water. On the next page he tells us that he has induced a colony of golden Italians to store 20 lbs. of sugar in seven days Now, if it takes one colony seven days to take 20 lbs. of sugar. how long and how many colonies will be required to store 8000 or 10,000 lbs. of sugar? The thinner the syrup, the faster will bees take it; but we find they do very well when fed syrup of 2 lbs. of sugar to one of water.

Dr. Miller says, page 661, Sept. 1, "For the first three days the young worker gets the same food as its royal sisters; then it is weaned, and gets coarser food for the two remaining days, while the better bill of fare is continued to the royal youngster." We infer that he is of the opinion that the difference in development is due to the quality of food the bees receive. I had supposed that these results depended more on the quantity of food fed than on the quality.

* * *

On page 793, Oct. 15, Dr. Miller protests against any one sending him samples of foul brood, and advises sending them to Dr. E. F. Phillips, Agricultural Department, Washington, D. C. In a footnote the editor says that nothing less than a stout wooden box should be used for sending such samples through the mails. Let me add that, if any one wants to send Dr. Phillips a sample of brood, just write to him first for a package, and he will send you a nice little wooden box with a frank that you can paste on to it, and so save you postage.

* * *

J. L. Byer's experience with candy is very close to my own, as given on page 750, Oct. 1. The first I made was not quite hard enough, but later I used a thermometer and boiled till the temperature rose to 275°, and the cakes were as hard as bricks; but after standing in a cool room for a time, they would run. I could not see that bees did any better on it than where they had honey or sugar syrup in their combs. It is certainly a good deal of work to make it. We have had to feed some 10,000 lbs. of sugar this fall. If we had been compelled to make half of it into candy I imagine there would have been something doing. Candy is very convenient for feeding during winter or early spring; but as a regular diet, excuse me. It looks as though it were a sort of fad just now. There is nothing new about it. Langstroth recommended it more than fifty years ago. [The making of Good candy is a fine art. It is so very easy to overdo or underdo it that it is difficult to get it *just right.* There is no use in denying it, candy is expensive when compared to syrup; but for all that, it is about the only substitute for good sealed stores we can use in the dead of winter. Possibly "fondant" as used and recommended by our Massachusetts friends may be easier made; but, if we mistake not, that also must be made just right or it will "run" all over the bees.—ED.]

BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

TAKING INVENTORIES OF STOCK.

How many beekeepers make it a rule to take an inventory of stock at the end of each year? We have often wondered how many do so. I have kept up this practice since the very beginning of my beekeeping, and it makes interesting reading to go over the various inventories of over twenty years. They reveal the real progress that we have made from the beginning, showing the increase in the valuation of the property from year to year, unless we have been unfortunate and have gone "backward" for some reason or other.

We have not only found it interesting to keep these yearly records, but of a great deal of value besides. In fact, since our business has grown to such an extent it becomes necessary now to make these records so that we can furnish our reports to the commercial agencies for proper rating.

* * *

MARKETING BULK COMB HONEY ALL WINTER.

Quite frequently we are not able to dispose of all of a large honey crop, especially when we harvest a good fall crop, before the winter months set in; and since the danger of granulation makes a serious inroad, it has become necessary for us to devise some means by which we can overcome this difficulty.

I have conducted some experiments along this line during the last two years, and have found it is possible to store comb honey in such a way in a dry warm room or a dry heated basement that it can be kept from granulating, and used whenever there is a demand for it. The extracted honey needs less attention since it can be reliquefied after it has granulated; and since we have made it a rule to heat all of our extracted honey that is used in packing the comb honey just before making the shipments to market, to prevent (for a time at least) the rapid granulation of some of our honeys, it does not matter so much if we do have to reliquefy it.

We believe we are the first persons who have adopted and successfully carried out the method of shipping honey to our customers throughout the entire winter months. Year before last we kept over winter about 6000 pounds of comb honey for an experiment along these lines. Last year we used 12,000 pounds in this way, and this year we shall carry over 40,000 pounds for this purpose. The above amounts must be more than doubled to get the amount of "bulk comb honey" that will actually result after it is packed in the various sizes of tin receptacles used, as it takes more extracted honey than comb honey to pack any of these in the right proportions.

* * *

GUARD AGAINST FIRES.

It is amazing to find, in the reports from the State fire-insurance boards, the great number of fires that might have been prevented. And this brings to our mind the utter carelessness in this respect so often displayed by some of our beekeepers. Time and again have I seen smokers, still filled with burning contents, carelessly set inside of a building with combustibles scattered over the floor, and within easy reach of the dangers lurking in such a smoker.

It has been our policy to teach all of our assistants to be more careful with such things than they are generally, and to take the contents of the smoker from any building or any thing else that might catch fire. When they come from the out-apiaries they have learned to throw the smoker contents out before they come back home; and when they use the smokers here they have been taught to empty the contents in the fireplace under the honey-liquefying vat and to extinguish any remaining fire by throwing water over it before leaving it.

There is also another important matter that I wish to mention; and that is with regard to the cleanliness of our out-apiaries, and even the apiaries at home. There will be years when it is almost impossible to keep down the grass and weeds successfully. We have just had one of these, on account of the excessive rainfall and a consequent lack of time. But we are putting all of our efforts into a general "cleaning-up campaign" now. With the oncoming of winter and the drying-up of the vegetation the fire risk in out-apairies where the grass and weeds have had the upper hand is exceedingly great. We have had several minor fires of this sort, and might have lost heavily in bees and hives burning if we had not at least been careful enough to keep the ground clean immediately around the hives.

It is a wonder that there are not more apiaries destroyed by fire from conditions that I have seen in many yards. Grass and weeds and leaves, where the apiary is located under deciduous trees, are all a menace, and should be cleaned away as promptly as possible. Doing this will save many a restless moment, for we are never certain about the safety of our colonies if this danger lurks near.

CONVERSATIONS WITH DOOLITTLE

At Borodino, New York.

INTRODUCING QUEENS AND SOMETHING ELSE.

"Will you tell us how to introduce queens safely? I did not have good success the past season, losing fully one-third of all I tried to put in full colonies. I once asked a man who said he had no trouble in introducing to tell me how it was done. He said he would do so if I would give him $5.00, and that it would be cheap at that price to me. That might be so; but some way my spirit rebelled, and I was not told how."

Many times, in my experience of over forty years with queen introduction, I have thought that I had a plan that would never fail; but when a time of scarcity of nectar came, sufficient to cause the bees to be crazy for robbing, to an extent that, in trying to find the queen I wished superseded, the bees were worried almost to exasperation in trying to defend their stores, or when I had a queen to introduce which had come a long distance so that she was inclined to run about among the bees immediately on being let loose among strange bees, then it was that my sure plan did not always work as formerly. In fact, there are few things laid down in bee culture that are not likely to turn out so contrary to our previous experience and expectation that the whole industry seems to be a series of surprises (and they are not always happy surprises either), so that there are very few places where a hold-fast rule will apply.

Generally the directions for introduction accompanying a queen will prove safe in the hands of most beekeepers; but where I have any queen which I consider of special value I take one frame of honey and two of mostly emerging brood (as nearly so as is possible), and put them in a hive, together with two other frames containing mostly empty comb. This hive has window-screen tacked to the bottom, and a close-fitting cover at the top, making sure that no bee can either get in or escape till I am ready to open it for the little colony which will be formed by the emerging brood. Having the hive thus fixed, with the five frames properly spaced next to one side of the hive, the whole being in the honey-room next to the window, so there is no danger of the queen getting away if she should chance to fly, the cage containing her is opened, and she and all her accompanying bees are run in on the combs when the cover is put on and all made bee-proof. This hive is now placed over the bare frames of a populous colony, the heat from which is sufficient to cause the brood to emerge the same as if a prime swarm had left it, as is done at swarming time. Six days later this hive is set on the stand it is desired to have it occupy, and a small entrance opened, when in a few days a nice little colony will be formed which can soon be built up into a good colony by giving three or four frames more of emerging brood. By this plan I have never lost a queen in an experience of over twenty years. But with only an ordinary queen the labor involved will more than offset the occasional loss which may occur with any of the many good plans of introduction which are before the public.

But I wish to say a few words regarding selling a plan for $5.00. If the man in question was a reader of any of the bee literature now at the command of the public he should have remembered that he had received untold value from the many writers who have gone on before. It would seem that many—yes, very many—have so forgotten, for the one desire which is apparently taking possession of the hearts of many of the people seems to be to get all they can, by hook or crook, of the things of this world, no matter what becomes of their fellow-beings. I have prided myself in the thought that beekeepers as a class are not so selfish as many in other pursuits; but if this is so the man wishing to receive $5.00 for information regarding how to introduce a queen must be an exception to the general rule. For nearly half a century I have profited by the many good things which have been freely given through the printed matter in our books and papers on bees; and should I not as freely give of whatever I may have wrought out as have those who have helped me?

Here is a thought I should like to leave with the readers of GLEANINGS. When a young couple start out on life's voyage they put all their energies together that a comfortable and happy home may be made. The husband does not try to defraud or take advantage of the wife, nor the wife the husband, but both work together to accomplish the same object—the blessedness of a comfortable home. Now, I wish to say that what is good for that family is good for the great family of beekeepers in this nation and in the world. Still further, what is good for the family is good for a State; what is good for a State is good for a nation; and what is good for a nation is good for the world; for we are all *brethren.*

GENERAL CORRESPONDENCE

NOTES OF THE SEASON

BY JAMES A. GREEN

The new power extractor, with friction drive, has proven very satisfactory, and I think the friction drive is much better for an extractor than gearing. The unfortunate thing this season has been that the extractor has had so little to do. Only once in my thirteen years' residence in Colorado have I seen a poorer honey season. Yet I have never known bees to be in better condition in the spring, nor the prospects for a good honey season to be better than this year. Truly beekeeping is an uncertain occupation. The producers of extracted honey have a little; but most of the comb-honey men in this part of the State have had practically nothing in the way of a crop. What little surplus my bees stored was almost entirely from sweet clover, alfalfa yielding almost nothing, and I believe this was generally true.

EUROPEAN FOUL BROOD OR POISONING?

The letter from Dr. E. F. Phillips, on page 615, expresses his belief that the loss of bees that has been so serious in this part of Colorado is due to European foul brood rather than to poisoning, as has been the general belief. While I do not doubt that Dr. Phillips may be correct in his diagnosis of European foul brood in the sample of brood sent him, he is certainly wrong in attributing our losses here to that cause.

I lost a number of colonies myself in 1912 in two of my apiaries. In the spring of 1913 I bought the remains of an apiary that had been reduced from over 200 colonies to less than 50, the outfit including a number of sets of brood-combs on which the bees had died. In none of the colonies that died was there any thing to indicate any disease of the brood further than the occasional case of American foul brood which is always with us. The only brood that died was what was chilled or starved for the lack of mature bees to care for it. The surviving colonies, moved to other localities, nearly all built up in good shape and gathered a good crop of honey in 1913. Most of the combs from the dead colonies were used for either brood or extracting combs, without transmitting disease thereby. The letter by James G. Brown, page 641, describes the situation very accurately as he has found it in Montrose County. In Mesa County our greatest loss was in 1912. After the losses of that season, most of the beekeepers in the orchard districts near Grand Junction and eastward either quit or moved their bees elsewhere. It is rather unfortunate that enough remained to prevent a thorough demonstration of what an entire lack of bees would do to the orchardists.

The heading of Mr. Brown's article is misleading in calling this "A New Danger from Spraying." It is an old story with us. In fact, I wrote of it several years ago in GLEANINGS when I was the editor of one of its departments. It seems difficult to get some people to comprehend that there is any danger to the beekeeper from spraying except during fruit bloom. Only once have I ever known of much damage to bees through the spraying of fruit-trees before the blossoms had fallen, and that was a trifle compared to the losses we have had since from the poisoned spray falling on the blossoms of plants growing under or near the fruit-trees at the time of the later sprayings. One of the heaviest losers, Mr. John Wallace, has lately sent samples of brood from one of the depopulated colonies to Washington, and the report of the authorities was that no disease could be found.

PEAR-BLIGHT NOT TRACEABLE TO BEES.

I wish to corroborate the statements of L. V. Dix, page 641, in regard to pear-blight. I have raised pears for a number of years, and live in a district which ships hundreds of carloads of pears annually. I have had some serious attacks of pear-blight in my own trees, and have seen a great deal of it elsewhere, even to the destruction of whole orchards, but I have never seen the slightest indication that bees are in any way responsible for the spread of the disease. I have never seen bees working on blighted branches, nor ever seen on such branches any thing that it seemed to me would be attractive to bees. Pear-blight sometimes spreads at an alarming rate under some conditions, appearing to be governed mostly by weather conditions; but the cure of it is simple when properly done, and the man who cannot get rid of it is too careless to be a fruit-grower. The cure consists simply in cutting off all blighted branches at least a foot below any sign of infection, doing a careful and thorough job, and keeping tools and the cut stub disinfected by swabbing them with a 1-to-1000 solution of bichloride of mercury. Other disinfectants are sometimes recommended. A favorite one is kerosene; but until I hear of surgeons using kerosene to sterilize their instruments I should prefer to use what is universally recognized as the best thing for such purposes.

STERILIZING FOUL-BROOD HONEY; A WARNING.

The recent publication of experiments showing the degree of heat necessary to kill foul-brood germs, showing that boiling for a short time would do this, and the following discussions, some of which at least would convey to the inexperienced the impression that this would be a safe practice to follow, are, in my opinion, liable to work great harm. Undoubtedly honey from diseased colonies may be so disinfected that it may be fed without conveying disease. I have myself fed considerable such honey without bad results. But the practice is exceedingly risky, and of this I have also had ample experience. The last lot of such honey that I fed was handled with every precaution that experience and reasoning had taught me was necessary and desirable; yet a number of cases of foul brood could be distinctly traced to the feeding of this lot of honey. I will now tell you just what precautions I used, and I want to say to you that nothing less thorough should be even considered. First, the honey was considerably diluted before boiling. I consider this desirable for various reasons, of which I will mention only the one, that this makes it possible to boil a long time without making the honey too thick to handle. Second, the honey was boiled a long time, not simply brought to a boil, but kept boiling for over an hour. Third, the honey was removed from the kettle in which it had been boiled, and the kettle thoroughly washed out. This is necessary, because some of the honey, in boiling and stirring, may have been left around the upper part of the kettle, where it would not get the necessary amount of heat. The next day the honey was again placed in the kettle, and again thoroughly boiled and stirred. This is in line with the practice of the canners of many articles of food, and the experience of bacteriologists, who have found that many spores and bacterial germs are much more certainly destroyed by two boilings, with a cooling period between, than by a single boiling, even if longer continued. Now, can you suggest any thing more that I ought to have done to this honey to make it safe? I believe that I am more careful in doing such work than the average beekeeper—much more so than some I know—yet I know that the feeding of this honey caused several cases of foul brood—just how many I do not know; but I feel sure that this experience cost me more than I ever saved by attempting to feed such honey. Never again for me! In my experience as bee-inspector I have come across cases where the feeding of honey from diseased colonies has had much worse results than it did with me. I do not know just why I failed on this occasion; but if I with my long experience with foul brood, dating back to twenty-five years ago, when I had a long siege of foul brood in Illinois, and exterminated it completely, could make such a failure as that, then I say to you that I believe it is a colossal mistake even to suggest to the inexperienced that it is ever advisable to feed such honey back to the bees, or, what amounts to the same thing, to feed any honey to bees that you are not absolutely sure is free from any chance of contagion; and *that* cannot be said of any honey bought in the open market.

Grand Junction, Colo.

◆

COLONY ODOR OF BEES TRACEABLE TO THE QUEEN AND THE QUEEN ONLY

BY JAY SMITH

I have read with a great deal of interest the discussion concerning the odor of bees, and it seems the matter is far from being settled. That there is much concerning the odor theory that is unknown to us all, can not be doubted. Many of us have a thread of the truth, and we think we have the whole rope. I also have a thread, and I propose to hang on to it till some one else breaks it or gives me a stronger one to hang on to.

My theory on the scent question is this: *The queen gives the colony its individual odor.* There may be other means which enable bees to recognize bees from another colony; but I believe the queen is the main factor. No one who has had experience with bees can for a moment doubt that the queen had a strong odor that is easily recognized by the bees. Many have, after handling the queen, while the swarm was in the air, had bees alight upon their hands and give the call to their comrades by fanning, indicating that they had found their queen, when in reality the queen had not been on the hand for a minute or more.

In requeening last year I had a number of bees continually alighting upon my right hand. If shaken off they would soon return. At last I remembered that, in killing the old queens, I gave them a pinch between my thumb and finger, and it was this queen odor that attracted the bees. I smoked my finger thoroughly, and the bees ceased to return. Here was a pointer: *Smoke will destroy the queen odor.* Put your thumb on this spot, for we shall come back to it later. The experience that converted me to the theory that the queen gives the colony its individual odor came to me several years ago while requeening my apiary, and I have verified what I learned several times since.

One hot July day I had a queen I had killed in my hand, and I sat down under a tree to cool off. Out of idle curiosity I placed the dead queen in a large bunch of bees that were clustered on the outside of a hive. I did this to see if they would ball her. They did not, but clustered around her very much the same as they would do with their own queen. As there seemed to be nothing startling in this experiment I forgot the matter and went on with my work. Next morning I was surprised and chagrined to find in front of this hive a good double handful of dead bees. I was nonplused. I thought that possibly the bees from the hive from which I had taken the queen and killed her had smelled their queen and gone to her and started a rumpus with its attending evil results, much the same as might occur if two suffragettes wanted the same office. (I have nothing against the last-named person unless her malady takes on the militant form.) I saw no bees flying around that would suggest this theory, and the matter for the time being was a mystery. A year later I tried the same experiment. This time it was about sundown, and no bees flying. Next morning the ground for two feet in front of the hive was strewn with dead bees. I believe there was over a quart. The bees of the colony were extra yellow, and all the dead bees were the same. There was no doubt that the dead queen had caused the bees in this colony to fight among themselves. (I have tried this several times since with the same result.) Why did the bees fight each other? This is the reason: The bees on the outside of the hive clustered around the dead queen and acquired her odor. Later in the night, when they went into the hive, they were taken for bees of another colony, and killed.

Another point I have settled to my own satisfaction is that the queen odor is very strong, but is not lasting beyond a very few minutes, and is easily removed from the bees. Now let us go back to the place in this article where, if you have followed my instructions, you still have your thumb. Why did the bees fail to alight upon my hand after I smoked it? Because the smoke destroyed the queen odor. Mr. Arthur C. Miller, why is your smoke method of queen introduction such a success? (Excuse me for butting in, but I am going to answer that for you.) Because the smoke destroys the queen odor of the colony; and the new queen, by coming in contact with the bees, imparts to them her odor before they have recovered from their demoralization.

Why will queenless bees readily unite with another colony? Because they have no queen odor. Why will bees coming in from the field be accepted in any hive they may happen to enter? Because they have been for some time in the open air, and the queen odor has left them. Why do bees usually recognize and object to robber bees? Because they come from a hive near by and have their queen odor still with them. A young worker bee out for her initial flight enters the wrong hive. She is seized, and a rigid examination and cross-questioning takes place. She is young and innocent, cannot be a robber, no harm intended; so, after being mauled, and having some hair pulled out, she may be allowed to pass on into the hive. They would have probably allowed her to pass without a word of suspicion, but they did not like that queen odor she brought with her. Possibly those that are admitted without an examination are those that were in the air longer, and lost more of their odor. Why are so many queens lost by the cage method of introduction? Because they cannot communicate their odor to the bees by coming in contact with them; and when released they are taken for a strange queen, and killed. Why do bees ball queens instead of stinging them? I don't know; but I have a suspicion that they wish to confine the queen odor and not allow it to penetrate the hive, thereby causing a riot as my dead queens did.

That bees also have the power to give off an odor is not doubted; but I believe they use it only when necessary, when fanning to call their mates of the hive, or upon like occasions.

I have used with perfect success for some years back the smoke method of introduction; but I always used tobacco smoke. I abandoned the plan, for I did not like to make the bees sick with the nauseating tobacco that God never intended should be used by man or beast except to their hurt. Thanks to Mr. Miller for telling us that good clean wood smoke will do as well.

Some have wondered why tobacco-smoked bees are so susceptible to robbers. It is because they are made sick by the fumes, and disgorge the honey they have in their honey-sacs, which attracts robbers. I have noticed, after tobacco-smoking them, that the inside of the hive would be sticky with honey.

Vincennes, Ind.

SOME OBSERVATIONS ON RECENT REPORTS OF QUEEN INTRODUCING BY THE SMOKE METHOD

BY ARTHUR C. MILLER

Reports of the widely varying results by the new direct method of introducing queens naturally raise the question, why the wide difference?

A careful analysis of the articles suggests at least three distinct causes; first, confusing the new with the old smoke method; second, improper use of smoke; and, third, failure to grasp or follow the instructions, simple though they are.

The new method is like the old in only two factors—bees and smoke. The confining factor was entirely lacking in the old method, and failure was more frequent than success. Somebody a hundred years and more ago ran in some queens by smoke. Incidentally, about the same time it was found that when twenty-four hours were allowed to elapse between the removal of the old and introduction of the new queen, success was fairly well assured. From time to time during the century following, other persons tried the smoke method, only to drop it, and but two or three in all that time noting the twenty-four-hour factor.

Then arose a variation of the old smoke plan in which the new queen was compelled to fast for half an hour, more or less, and was then run in at night—a successful procedure in most instances, but time-consuming, and a bit troublesome in the night factor.

IMPORTANT REQUISITES OF THE NEW SMOKE METHOD.

Then came the new method, and in the originator's hands always successful, the rare exception merely proving the rule. Other persons also have been equally successful. The new method emphasizes the closing of the hive so neither the queen can escape nor the bees free the hive from the smoke. The confinement of both is important, and by the old smoke method neither was confined. Naturally, if a person has in mind the old way and tries it again the results will be as variable as always. If we are to introduce at any hour of the day we must temporarily prevent the queen's escape. If we are to create and sustain the desired and necessary condition of distress we must shut in the smoke and do it so completely that the bees can get no relief until it is the operator's pleasure. This is not possible in cracked, warped, leaky, unpainted hives. And in hives of two or more chambers, or if much of the space is unoccupied, as, for example, a small nucleus in a full-sized body, smoke enough must be used so that the contained air will be so smoke-filled that its circulation will not afford relief.

Then the smoke must be of a suffocating nature; hence the instructions to get a cloud of "thick white smoke," and use just enough of it to get the bees into a heavy roar and then run in the queen and shut in the smoke and queen for about ten minutes.

At once somebody, "to make assurance doubly sure, gives them a good hard smoking." Now, a good hard smoking generally means a vigorous pumping of the bellows, getting up a strong hot fire, and the hot burning smoke produced thereby works very differently on the bees from the "thick white" sort. First, it irritates the bees often to a point of vicious attack on every thing, including each other. Second, it does not fill the hive with a suffocating cloud which will produce the desired distress. It seems strange that some veteran beekeepers are apparently quite ignorant of the effect on the bees of various sorts of smoke.

Some persons never can grasp and follow instructions; and the more simple they are, the wider the operator digresses from them. For example, I have only to cite the many failures to make so simple a thing as hard candy, the making of which every lively youngster is supposed to be able to do.

FAILURE TO FOLLOW METHODS PRESCRIBED, AND THE RESULTS.

Some persons are prone to make variations of any method to suit their preconceived notions before trying the method as given; and then on failing they lay it to the method and not to their innovations, which, likely as not, were tried out and discarded by the originator of the said method. This is very evident in reading the reports on the new introduction system, as well as on scores of other things pertaining to bee culture.

H. A. McLendon's apiary, Andalusia, Alabama. In reach of these bees are black and white tupelo, poplar, alder, ti-ti, gallberry, etc.

Not a few have mixed the introduction by the new method to queenless colonies with the suggested experiments with the method, in requeening without dequeening; and yet nearly as many have reported success in requeening without dequeening as have reported failure.

Bee culture met with almost as great a misfortune as good fortune when Langstroth introduced his hive and the book in which he described it, and the manipulations possible with it. The bee-world went manipulation mad, and has never gotten over it. Most of the wonders of bee-life described by Langstroth were overlooked so far as applying them to the art of bee culture is concerned. Hot on the heels of the appearance of Langstroth's hive came a host of others, and all sorts of claims and counter-claims, variations, inventions, new or revamped, fairly overwhelmed the bee-press, and each one added to the obscuration of the most important things in Langstroth's book.

Coincident with the publication of Langstroth's book was that of that great bee-master, Quinby, perhaps the greatest we have ever had. His book was packed from cover to cover with the art of understanding bees and their ways. Appliances were incidental to the work, not the work to the appliances. His description of bee actions, the why and when of sundry operations, the reasoning from effect back to cause, are marvels of bee-mastership. Later, learning of Langstroth's invention he was quick to see its value, but he did not let it run away with him. No, he fitted it to his knowledge of the ways and needs of the bee and the beekeeper. Wherever one finds an old student and follower of Quinby, he finds a true bee-master. One cannot help wondering where commercial beekeeping would be to-day had Quinby's work been the text-book of the beekeeping world instead of Langstroth. Quinby unquestionably was the *father of commercial bee culture.* He did more with his simple appliances than many a "big" beekeeper of to-day does with all his implements and appliances. And he was able to do it because he studied the bees and their ways, and understood them. And those persons who took the pains to study his writings also learned to a marked degree to understand the bee.

But to-day it is not so. Every thing revolves about appliances and *their* manipulations. Very few beekeepers will carefully read a painstaking description of bee structure or bee behavior, and fewer still will grasp its importance or know how to use it. This fact is brought home strongly to those of us who address gatherings of beekeepers. After a careful talk on some phase of bee behavior and its application to bee culture, one is shocked by the total missing of the points by some of the listeners. Here and there will be one who has grasped the remarks, and questioning usually brings out the fact that such a one has been a student of some branch of applied science, or is trained in analysis.

I doubt not that many who read this will, in their championship for Langstroth, fail entirely to grasp the lesson I would teach. I would not detract one whit from the honor given to Langstroth, but I do want to point out what we have missed in not knowing more of the manner and method of Quinby.

To observe, to read, to grasp, to understand and apply, was what Quinby taught as no other man since has done; and such method is what we need now, in all that relates to bee culture, be it introduction of queens or any other part of the art.

The new method of queen introduction is based on well-understood reactions of the bees to certain conditions, and it is good. Its failure in some hands is due to the operators not understanding the principle or the bees.

Providence, R. I., Nov. 6.

BEEKEEPING IN ALABAMA

BY H. A. M'LENDON

It is like a farmer endeavoring to farm without tools to keep bees without a journal. My apiary of a hundred colonies did well last season. Except for the extremely long drouth which, by the way, has never happened here before, my colonies would have averaged around 100 pounds of section honey. However, in spite of that they easily averaged 50 lbs. to the hive, which, I think, is a good average.

I am sending a picture of my three-year-old yard. So few people realize how great the industry could be made in southern Alabama, especially in Covington County. I started with about a dozen gums three years ago, with some little experience that I got while with my father, J. R. McLendon, on the farm in Montgomery County. In those days the surrounding beekeepers would meet several times during the year with well-filled baskets, and have a get-together bee-meeting, talking over bee culture, and exhibiting specimens of honey.

I prefer the ten-frame hive. My bees are of a mixed race, and it is more than interesting to note the difference in bees. Even the mixed Italians show a great superiority over the common strain. We are surrounded here by the Conecuh River Swamp, Bay Branch Stream, the five runs, and various branches. In fact, I know of no better location for a dozen or more apiaries than southern Alabama, where we have black and white tupelo, gum, poplar, alder, ti-ti, gallberry, and various other plants which grow honey in abundance.

The flow of the honey-dew is abundantly spread over leaves of the various trees; and the hum of the bees, as we sit under our own vine and fig-tree in the spring of the year makes one feel as if the glory of God rests with us bounteously.

What has become of the old-time beekeeper? From observation I think the industry is more neglected in this State than in any other in the Union. We have no bee inspector nor bee organization for the State. Cannot some plan be suggested that will wake up beekeepers of our State to the realization that we are sleeping, and losing great things in bee culture by not being organized?

Andalusia, Ala.

THE ALEXANDER METHOD OF INCREASE

Some Discrepancies that Confuse Beginners and Veterans Alike

BY A. SWAHN

Dr. C. C. Miller:—I am taking up beekeeping with very much interest, and have your book, also every other book of note on the subject. I have made a close study of the subject, and the more I study and practice the better I like it. I find, however, a few points which are very misleading to an amateur like myself, and should like some light on the subject. Please refer to page 366 of the last issue of A B C and X Y Z of Bee Culture in a note from you commenting on the method of increase employed by the late E. W. Alexander. This note makes the whole subject very misleading, as it is without an explanation. This leads one to come to several conclusions—either Mr. Alexander was not a successful beekeeper or he has misrepresented his methods, as you say, "What successful beekeeper uses it?" I wish you would answer this through the pages of GLEANINGS.

If Mr. Alexander's method of increase is too rapid for good results I cannot understand your article in your own book, page

35, where you state that you made an increase of 164 per cent on a white-clover pasture only. After reading all this I am simply up against it, and can get no head nor tail to the whole business. Such contradictory articles should not be written without full explanations, in order to make a work any good to an amateur. I shall thank you very much for some light on this subject.

Ellsworth, Wis.

[Dr. Miller sends the foregoing to us with his reply.]

Don't be discouraged if at first there are some things not entirely clear of comprehension in the literature of beekeeping. It's a study, and by no means a superficial one. When you studied arithmetic or grammar, more than once you came upon things difficult to grasp, and you were glad to apply for help to "Teacher." Why expect beekeeping to be so different from other studies? And please don't expect too much in the way of "full explanations" in connection with every thing written about bee culture. If every thing were so fully detailed that the beginner could not possibly misunderstand, a year later he would complain at having the columns lumbered up with unnecessary material. Moreover, in a text-book a misunderstanding often arises because a detached item is taken without full acquaintance with the rest of the book.

Having said all this, let me hasten to add that there are (probably always will be) discrepancies and contradictions among the writings of beekeepers. Difference in localities and conditions lead to difference in views. Besides, beekeepers are human, and so may err in their observations or conclusions.

Now for the thing you say you are up against. Mr. Alexander divides before the clover harvest, and says, "I find I can get nearly twice the amount of surplus" by thus dividing. In the footnote I say, "If I should follow the plan it would only be at a loss in the honey crop." In thus saying I do not accuse Mr. Alexander of being unsuccessful, or as misrepresenting. He was a successful beekeeper of the highest integrity. But his situation was one out of a thousand. His bees had the range of 50,000 acres of buckwheat. His late flow was his chief flow, if I am not mistaken. If he divided a colony before white clover he could have at the beginning of buckwheat two colonies, each as strong as would have been the one if left undivided. Clearly that should double his buckwheat crop; and even if his clover crop were lessened by dividing, his total crop might easily be "nearly twice" what it would be without the dividing.

My late flow is small compared with the early flow. If I get a colony to its highest strength by the beginning of white clover I am doing well. If I divide, the yield from clover of the two divided parts will be so much less than the undivided colony would give that no increase of fall flow would make up for it. So if I should divide "it would only be at a loss in the honey crop."

It may be well to explain that the thing I think especially misleading on the page mentioned is the statement that you can divide so that "you can have two good strong colonies in the place of one ready to commence work on your clover harvest." On the face of it, what can the beginner understand but that with the proper management he can, by dividing, double his white-clover crop? Not only do I not believe that it can be doubled in other locations, but I do not believe it can be at all *increased* in one place in a thousand. Of course, I may be mistaken in my belief; but if I am correct in that belief, such a statement should not stand in the A B C and X Y Z without some other warning than the protest in that footnote. If the author of that book thinks I am off in this matter, I'll change the question asked in the footnote, and say, "What successful man doubles his white-clover crop by dividing his colonies before the white-clover harvest?" If he thinks there's any unfairness in that question, let him please answer this: "What successful man (or unsuccessful) increases his white-clover crop each year by dividing his colonies before the white-clover harvest?" Names, please. Two will elicit my wonder; five, a handsome apology.

You seem to see inconsistency in my thinking that I could increase 100 per cent only at a loss in the honey crop, and then make an increase of 164 per cent myself. Bless your heart, I've made a good deal bigger increase than that. But I didn't increase the honey crop by it—didn't expect to. I increased bees, not honey; and when I increased 164 per cent I didn't get as much honey as if I had increased less or not at all.

Here's the whole thing in a nut-shell: I believe that where the early harvest is the chief one (and that probably covers the most of the ground) the less increase the more honey; but if the late crop is sufficient, early doubling may increase the total harvest.

Marengo, Ill. C. C. Miller.

[The Alexander method, when it first came out, received a great deal of favorable

Summer home and apiary of S. George Stevens, Duluth, Minn.

comment; but, as Dr. Miller says, we must take into consideration that his (Alexander's) main honey-flow was not from clover but from buckwheat, goldenrod, and asters. His method of increase is all right; but the *time* to apply is all wrong for most localities in the North. Dr. Miller's points are so well taken that we shall omit the time *when,* as given by Alexander, from the next edition.—Ed.]

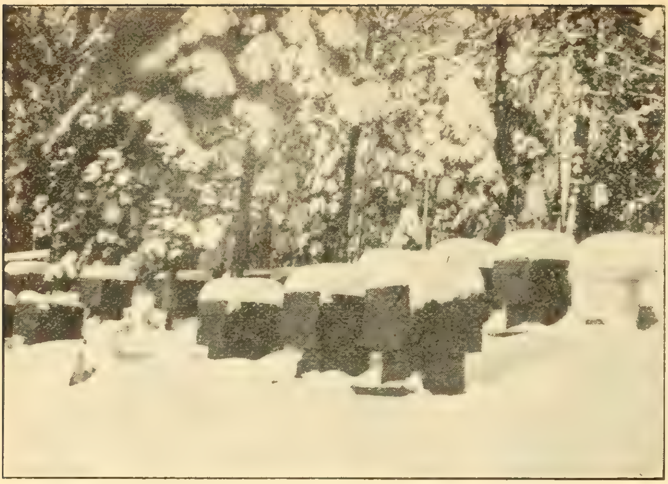
A WINTER CASE HAVING A LARGE EMPTY SPACE BELOW THE BEES

BY S. GEO. STEVENS

Having twenty hives of bees to prepare for winter in the fall of 1912, and no place other than their summer stands available, I was up against the real question in earnest. I had read very carefully all the articles in Gleanings on the subject, showing that packed hives are the only thing, and, on the other hand, that the thin black hive with large entrance is the only way, etc. As I sat on an empty hive debating the question in trying to decide what was best for my needs, the happy thought struck me, "I'll do both," and so I did, in the most simple manner.

A closer view of the apiary of S. George Stevens.

Many times have I watched the bees fanning at one end of a horizontal entrance, forcing the air outward while fresh air was



A NEW TYPE OF WINTER CASE.
Below the packed hive is an empty box having a vertical entrance instead of the usual horizontal one, and a series of slots communicating with the hive above.

drawn in at the opposite end; and I thought how unnatural it all was compared to the vertical slot in a tree, where natural circulation of air invariably exists by reason of the warmer air going out at the upper end of the slot, and the cooler entering the lower end, thus saving to the bees the trouble of fanning.

This thought first led me to the vertical tandem hive, the lower one of which is single-walled, empty, and provided with the very necessary vertically disposed entrance which always insures at least some circulation of air. This lower hive is also painted black, and designed to absorb all the heat possible from the sun's rays. The vertical entrance extends upward somewhat beyond the center of the hive, performing not only the function of air circulation, but that of providing means of avoiding complete "blockation" by snow, which is no small item.

Upon this empty hive is placed a large simple plain box, about three or four inches larger all around than a hive, and having a bottom to cover completely the empty hive below.

In this bottom adjacent either side, and so positioned as to occur within the walls of the hives both below and above, is formed a long narrow slot or beeway, these slots being preferably just the proper width for a bee to pass through comfortably.

The hive containing the colony of bees is placed within the large box directly over the empty hive below, and the space all around the hive within the box is filled with any convenient form of packing, such as shavings, dried leaves, or the like, there being sufficient space to put four or five inches of the packing directly above or on top of the hive. The cover may be of any desired form—preferably a telescopic water-tight wooden one.

Thus we have our colony of bees in a comfortable packed hive with a positive supply of fresh air entering the hive upon either side of the colony, and not up against the lowermost bees in the cluster, and also providing winter quarters with all the benefits and advantages of the single-walled hive for absorbing and radiating the heat of the sun to the bees, without any of the disadvantages that the single-walled hive otherwise carries.

The circulation of air within the hive invariably changes once a day on account of the heat of the sun being on one side of

C. Woodward, Wyandotte, Mich., standing by a colony of bees which, during 1913, filled 10 supers of 24 sections each, without swarming.

the hive or radiating chamber part of the day, and shifting to the other side during the other half of the day; that is, of course, provided the hives stand north and south, thus reversing the air currents, as is evident.

Twenty colonies wintered in this manner came through in most beautiful shape; in fact, one colony of only three frames appeared as strong as when put in in the fall. Seventeen colonies were again wintered in the same manner during the winter of 1913, and came through in fine order, even though in many cases their stores were so light as to cause the starvation of the entire colony after April 15.

Duluth, Minn., Aug. 27.

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THE BRITISH EXPERTS

BY ONE OF THEM

The certificates of proficiency in beekeeping awarded by the British Beekeepers' Association are more and more essential as the county associations grow warm to their work and the county councils decide to appoint lecturers, demonstrators, and inspectors. It may be of interest to our American friends to hear of the three grades of expert certified in this country, and a little of the test which discovers them.

At the lowest rung is the third-class expert. He has to satisfy the examiner in the first place as to his ability to manipulate bees. Under the examiner's eye he opens a hive, searches for and finds the queen, replaces the frames in their proper order, and makes the hive snug. Until quite lately the examinee had also to drive the bees from a skep or fixed-frame box hive, getting all the bees out and securing the queen as she ascends with the crowd. Undoubtedly this will be a useful accomplishment for many years to come, and it is, perhaps, a pity that the test for it has been dropped.

The manipulation over, the third-class examinee has a talk of more than an hour's duration with the examiner on the topics of apparatus and their use, management, the treatment of disease, and other questions of practical bee culture. If he has proved himself a manipulator, and comes out of this talk with credit, he gets his third-class certificate.

A few months later he sits for the second-class examination. This consists of two papers—A, practical; B, scientific. All candidates sit on the same day; but in their own homes or places contiguous thereto, a responsible person being appointed in each case as "vigilator," to sit in the room and see that the rules of the association are observed. Two and a half hours' hard writing are needed for the answering of each paper. The candidate will have read Cowan's "Honey-bee," the first volume (scientific) of Cheshire and Cowan and Herrod respectively on wax-rendering, preparation of produce, and exhibiting.

The papers of a recent second-class examination had five questions each. In the practical, candidates had to deal with spring work, wiring frames, the sources and qualities of honey, all the details of rendering and purifying wax, and were asked to give a justification of the maxim, "keep your stocks strong." In the scientific, the examiner wanted a drawing and description of each leg of a bee, a scientific placing of *Apis mellifica* in the order of Annulates, an enumeration and short description of the trophi, something about the fertilization of the queen and her eggs, and an illustrated account of pollination of flowers by the bees.

For the first-class examination the candidate must have a still more exact knowledge of Cowan's book, and must show "a satisfactory acquaintance with the best literature on bees and beekeeping." He can scarcely expect to pass without a good reading, for example, of the "A B C and X Y Z," and he must expect some questions on the most up-to-date methods of American beekeeping. He may be asked, in the light of this complete knowledge, to say something about queen-rearing, the prominent differences between American and British methods for securing honey, the prevention of excessive swarming, the pitfalls that beset a novice, and how to avoid them; the duties of a judge, and so on. In the scientific paper he may have to draw the microscopic details of an antenna, and allocate the various discoveries of smell organs, and so on to Swammerdam, Schiemenz, and the others. He must know equally well about the tongue, spermatheca, the nervous system, the tracheæ, the ventricals, and the rest, and be able to explain scientifically hygienic details within the control of the beekeeper. And perhaps he will be asked to tell just what we owe to the discoveries of Mehring, Langstroth, Hruschka, Huber, and others. In other words, his paper knowledge must be somewhat extensive and peculiar.

One is not quite a first-class expert, even when he has answered satisfactorily this final paper. It has yet to be proved that the candidate can give out orally that which he knows. A day is arranged for his attendance before the Board of Examiners. A paper is handed him with a topic written upon it. He is given five minutes for "thinking over the topic and outline notes." Then he re-enters the room and gives a lecture "extending to a quarter of an hour."

An outdoor colony weighing 30 pounds—bees, combs, and all.

I have written these notes on the British system, without knowing what counterpart it has in America. Undoubtedly the reading-up for these examinations is of great use to the beekeeper, whether he takes them all or not. It gives an incentive for a closer study than most of us would take without it, and a profundity to the pleasures of beekeeping that the mere practice of rule-of-thumb methods can never give.

Sheepscombe, Gloucestershire, Eng.

THE CAPTURE OF AN OUTDOOR COLONY

BY T. DWIGHT WHITMAN

As I was going to town on the street-car with part of a hive on July 14, 1913, a gentleman sitting on the other side of the aisle asked me if I was a beekeeper; and on my replying that I was he told me that there was a colony of bees in a small tree opposite his residence that had been there to his knowledge for three weeks, and had

Getting ready to transfer the colony into a hive.

built a piece of comb as large as a soup-plate. Many times I have been told of a fine swarm of bees at a certain place, and on going there found them to be hornets; but he was so positive that they were bees that I went out July 16, and found that the bees had located in a small alder-tree about four feet from the cement sidewalk, and were busy at work bringing in honey and pollen. The comb was attached to the branches in a number of pieces, and there were several hatched queen-cells in sight The bees and comb weighed 30 pounds. They were remarkably gentle bees, and never offered to sting while I was cutting off the different branches or photographing them. I put them in a box with a wire-screen cover, and brought them home on the street-car.

I put a box with a West cell-protector leading into the box in the tree; and when I went back in the evening I had caught most of the stray bees; and what few were still out I had no trouble in catching with my fingers and putting in the box.

The amount of work that they had done, and the hatching of the queen-cells, was remarkable to me, as we had not been having either warm or fine weather, it having been as follows: two fine days; two rainy days; one fine day; one dull and windy; one showers during the day; two fine; one rainy; one fine; one dull; one dull with rain in evening; two fine days; two days with showers; two dull days preceding the day I got them.

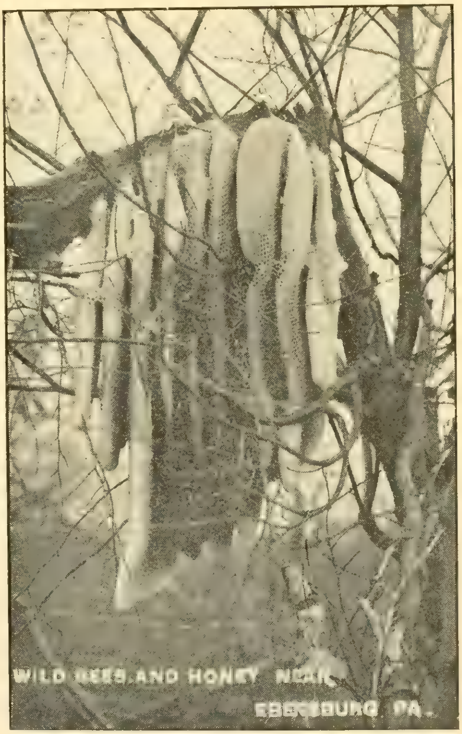
Fig. 1 shows one side of the colony with a hatched queen-cell near the lower edge about the center of the colony; No. 2 the other side of the colony, with queen-cells between the sections of comb. No. 3 shows the colony ready to shake in front of their new home; No. 4, the bees shaken off and safely housed; No. 5, ready to cut out the comb and tie in frames; Nos. 6 and 7, taken one week later; No. 6, looking for the queen; No. 7, there she is!

The photos were taken by myself by treading on the camera bulb attached to a long rubber tube. Note artistic pose.

Tacoma, Wash., Aug. 11.

The job completed, and the bees safe for winter.

[Prof. H. A. Surface sent us a very fine photograph of an outdoor colony last summer. A reproduction of it appears herewith, showing the extensive comb-building for a colony living out in the open.—Ed.]



An outdoor colony having an unusual amount of comb. Sent by Prof. H. A. Surface, Harrisburg, Pa. *Photographed by Deek Lane.*

Apiary of Anna Sommer, Ronne, Bornhelm, Denmark.

AN APIARY IN DENMARK

BY ANNA SOMMER

I am sending you a picture of my home apiary. It is only a small affair, but I have an outyard containing the same number of colonies. Large apiaries are not found on our island. We have a profusion of flowers in the summer, but the climate is so changeable that the yield of nectar is quite uncertain.

This picture was taken a few days before Christmas. We always winter out of doors here. The corner of the honey-house shows at the right.

Ronne, Bornhelm, Denmark.

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FEEDING BEES WHEN IN WINTER QUARTERS, WITHOUT CANDY

A Practical, Simple, and Reliable Plan

T. P. CLARE

Can it be done successfully? the beginner asks. Yes, as successfully as in September, though a little more trouble. First, as to the feed. As the bees cannot fly, and so evaporate the excess of water, as in September, we save them this trouble by making the syrup thick and feeding it warm. A food that gives perfect results is made by bringing *one* measure of water to the boiling-point in a suitable vessel. Then stir in *three* measures of granulated sugar. When thoroughly dissolved (near the boiling-point) remove the vessel from the stove and stir in *one* measure of honey (the poorest you have will do). The honey will keep the thick syrup from graining as it otherwise would. Now, to get this thick feed stored in the central combs, just where it is needed, make a rim of boards, about four inches wide, as large as your hive (an empty section case or super will do). Heat a couple of bricks, and put them inside the super on an extra bottom-board. For a feeder use a baking-pan, a little smaller than the inside of the super. Place this on the hot brick and pour warm syrup into the pan. Spread over this a piece of cheese-cloth, some bits of comb, a handful of shavings or excelsior (anything that will keep the bees from sinking in the feed). Now place the hive containing the colony to be fed upon the prepared super. The warmth and scent of the feed will lead the bees to loosen and lengthen their cluster to the feed, and in a few hours the contents of the pan will be transferred to the brood-nest, and the bees will settle down for their long winter sleep.

For the benefit of beginners I will add, while the bees are feeding keep the cellar dark to prevent bees flying out. But what about those that are wintered outside, whose case is doubtful? Any pleasant calm day remove the top packing; raise the burlap that is over the bees; place two pieces of lath across the top of the frames, and upon these invert a 10-lb. pail of grained honey. Drop the burlap in front of the pail; place more burlap and soft paper behind and at the sides of the pail to protect the bees. Fill in the chaff, put on the cover, and your bees are safe.

Last fall, in packing I found several stocks that had been breeding after they had been fed up for winter, and that were near the danger line. As we had plenty of sweet-clover honey in 5 and 10 lb. pails, and I had experimented in this way the winter before, I fed up the questionable ones as I have described, and *every one* wintered finely, though it was the coldest winter we have had for years. When combs of honey have not been reserved, or when the supply of these is exhausted, I have found that granulated honey and warm packing will fit the bees to answer the roll-call on the first of May.

Call this "emergency feeding," Mr. Editor —not to be desired, I fully grant, but it is much to be preferred to empty hives next spring. Bees around Toronto have not gathered their winter stores this season, and the zeal of many has got cold.

Toronto, Canada.

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SPRAYING VERSUS BEES

BY C. W. WOODWORTH

Ever since spraying has been recommended for the prevention of the codling-moth injury there has been more or less insistence upon the filling of the blossom-cup of the apple with the spray; and from the first there has been more or less fear expressed as to danger that might follow from the use of the poison. By carefully conducted tests and experiments this was early allayed so far as concerns the danger from the consumption of the fruit; but there remains a very prevalent belief that this practice is fatal to bees, and liable to poison people consuming honey if the spray is applied before the blossoms have ceased to produce nectar. For this reason the published directions for spraying almost universally insist on the delay of spraying till the petals have fallen, and in several States the spraying of trees in bloom is a penal offense. It appears that this general fear is not based on experimental data.

We pointed out ten years ago that in the Pajaro Valley the fruit that sets may be wholly that from the first blossoms, and that this fruit may be already as large as cherries before the larger part of the blossoms fall, and that, to poison the blossom-cups of the fruit, the spray would have to be applied before full bloom. It was not necessary at that time to take up the question of the possible danger to bees, since the most satisfactory spraying practice was found not to require early treatment. Recent studies by Mr. W. H. Volck, of this Department, have shown the desirability of a spray during blossoming for other purposes, and thus raises this question, though there have never been many bees in the Valley.

A colony was shipped from the University apiary at Berkeley to Watsonville, and placed in a tree in the center of a forty-acre apple-orchard just before spraying, with an unusually heavy dose of arsenicals as the trees were just coming into full bloom. The colony was selected by Mr. R. W. Brown, assistant in apiculture, and carefully examined by him before and after shipment to Watsonville, and he was unable to find any evidence of the poisoning of bees or brood. On the return trip the hive was kept closed until enough dead bees had accumulated for analysis, and samples of pollen and of newly stored honey were also analyzed by Mr. G. P. Gray, with negative results in the case of the latter. An amount of arsenic was recovered from the dead bees, nearly approaching a toxic dose—all clearly showing that, even under the severe conditions of the excessive dose, and a locality where practically all the food was from sprayed trees, there was no appreciable danger to man from poisoned honey.

In order to determine more definitely the danger to adult bees, a large number of the dead bees were dissected by my assistant, Mr. E. Ralph Ong, and the internal organs analyzed by Mr. Gray, showing that none of the arsenic present was inside the body of the bees. It appears, therefore, that in spraying, while the outside of the body of the bee may have received enough arsenic to cause the death of the insect, it remained on the outside, and therefore could have had no more effect than the sprayer experiences from the spray that falls on the coat.

We feel justified, from the results secured in these experiments, in holding that there is no danger to bees from spraying operations with insoluble arsenicals; and that reports to the contrary, of extensive losses to beekeepers, are without foundation. The recent account of losses in Colorado (Foster in GLEANINGS, Oct. 15, 1914, p. 798) could not have been due to arsenical poisoning because the symptoms described are entirely different. We have experimented very extensively with arsenical poisoning, with a large variety of insects, and have never, in any case, produced swelling; nor have poisoned insects ever shown the kind of activity that bloated bees always exhibit, and which was referred to in the same article.

University of California, Oct. 21.

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SHAKING BEES FROM COMBS FOR EXTRACTING

BY GEORGE SHIBER

A phase that has grown monotonous with me this fall is, "We have no honey for sale. This has been the poorest season I ever had—a complete failure." So day after day my old customers come on foot, in buggies, and automobiles for honey; and to all I have to pass out the distasteful phrase. I am hoping that I shall not have to say it next year; for I have had practice enough repeating it this year; and—say! I have been having experience in getting mail orders with checks enclosed, and having to return them.

I am learning something new about beekeeping this year. The problem in the past was, how to get the buyers; now it is how to explain the failure; so, as I say, I hope I can lay the phrase permanently away next season. We have had plenty of rain late this past season, so next year may make good again as usual.

The above was not what I intended to write about when I sat down (it's the truth, though); but about that article by "Outlaw," page 864, Nov. 1, on taking off honey and extracting; it is good, and there are many good practical points in it. The most satisfactory way of taking off honey, and extracting too, is the way which has the least number of false motions and fussing. In taking off honey I use a wheelbarrow that holds two twelve-frame bodies; and when full I run them into the shop and then get another load, and so on. I never use a broom or brush of any kind. I used to, but found the brush caused unnecessary work. I simply take off the cover, using plenty of smoke; put a cloth over combs that rolls at the edge as fast as the combs are taken out. Shake each comb down in front of the entrance. This shaking bees off from heavy combs is hard work unless we do it just right; but if done properly the weight of the comb will do the work itself.

How is it done? By taking hold of the top-bars with both hands in the usual way, and letting the comb drop, pushing it downward with the hands; then aim to stop the comb within six or eight inches of the ground in front of the entrance. When starting to stop the comb I push down with one hand and raise the comb a little with the other, with a slight jerk; this is done very quickly without any fussing or foolishness. No, it does not clean all of the bees from the comb. They will soon fly to the screen window in the shop, so they are out of the way. When the extracting is done a new colony can be made of the cluster of bees. I used to use a broom, and brush each comb; but I quit it some time ago because it was extra work that I got no pay for.

The Outlaw's remarks about taking care of empty combs from the extractor are good. I do not know of any thing that will "tear one's nerves to shreds" like being a little careless in handling combs. For instance, in the hurry, if a few combs are left against the wall or the floor, and then more combs from the extractor, these piled against them, soon they commence to slide, or a foot goes through one, and they keep piling up, and so general misery and hatred of extracting follow. The rule I observe is to put empty combs into hive-bodies as soon as taken from the extractor when the body is full, while the combs are spinning in the machine. This is piled up at the side of the shop, and another empty body taken to hold more combs. We always find great satisfaction in keeping every thing picked up and finished as we go along, and in that way we can accomplish more with less labor than to let things slip and slide around "every which way."

Randolph, N. Y.

A PAIR OF BOSSES

BY LEWIS P. TANTON

This picture shows the "boss of the house," Miss Ellinor, age 19 months, perched on the "boss hive" of this latitude. She is in good humor, and enjoying the situation; but the strong sun playing on one side blinks the eye to make her look otherwise.

Ellinor Tanton standing on the champion hive in the apiary.

My champion hive (her pedestal) is packed full of brood and honey, and has two comb-honey supers of 24 sections each, and one extracting-super, all full and ready to remove. Besides this I have already taken off one 24-section super and one extracting-super.

From this hive I took a strong three-frame nucleus early in the season. This nucleus is seen in the rear, to the right, in the form of a three-story hive. From this young colony I have taken one 24-section super almost full and formed another nucleus hive (not visible in this picture) which is now full of brood and honey, and will make a strong hive for winter. On the brood-chamber, which is packed close with brood and honey, is a 48-section super, full and ready to be removed, and the top extracting-super will soon be filled.

The parent colony swarmed once; but I returned the swarm to its home, where they settled down contentedly. I also took two or three frames of brood from it to help other hives, and have a fourth nucleus with a queen from her stock, also a vigorous colony. What promises to be a very plentiful fall honey-flow is just commencing, and I anticipate another super or more of extracted honey from this colony. I do not think you can find a colony as far north as this that could enter into competition with it.

These bees are very gentle. The children play around them with safety, and I frequently handle them without smoke or veil, and without stings. They are quite yellow, some of them almost four-banded.

Charlottetown, P. E. Island, Aug. 24.

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MARKING HIVES; HIVE RECORDS

BY DR. L. A. SIMMON

First a notebook is indispensable. Six strips of tin are necessary, 1½ inches wide and 5 long, each one painted a different color—red, white, blue, black, green, yellow. Both sides are painted. A small hole is punched ½ inch from one end of each strip. They are now bunched on one nail, and all placed the same way. As the tin is concave on one side where the nail is driven through, the metal projecting around the hole on the side opposite this projection fits into the concavity in the next strip, permitting any one of the strips to turn in either direction, and yet with enough friction to hold it in any position in which it is placed.

The method of using is as follows: Fasten the bunch to the hive by driving a small nail through the holes in the end of the bunch. They may be fastened to the margin of the cover or on the center of the end or side. They should be arranged so that when one is walking between two rows of hives both sides can be read.

Since *red* is the danger-signal I use this to indicate "something wrong here." Approaching a hive with this red signal up, if I cannot remember the conditions when last examined I refer to the page of my notebook corresponding to the number of the hive. There I find a brief record of conditions. All hives are numbered, and each hive is given a page or two in the notebook corresponding to the number of the hive. Thus the red flag and notebook take care of a great many conditions for which it would be impractical to have a special signal.

There are five colors left. Each one may be used to indicate some important condition. For example, white for me means "O. K." Blue means "queen-cells;" green, "recently swarmed;" yellow, "a prime swarm;" black, "queenless."

The combination of black and white turned up from the bunch in the form of a Y means "ready for supers." Black and red combined mean "supers ready to come off;" red and white mean "out of stores;" red and green mean "light in honey;" red and white signify "dwindling." Any number of combinations may be made.

This system has, to recommend it, that it is inexpensive, easy of application, convenient in use, everlasting, and unaffected by weather. After learning the signals the beekeeper can walk up and down his apiary and read at a glance the exact conditions of every hive.

With the intelligent use of a pocket notebook this system relieves the mind of carrying or trying to carry the individual conditions of each hive.

Auburndale, Fla.

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TWO COLONIES TRANSFERRED FROM TREES

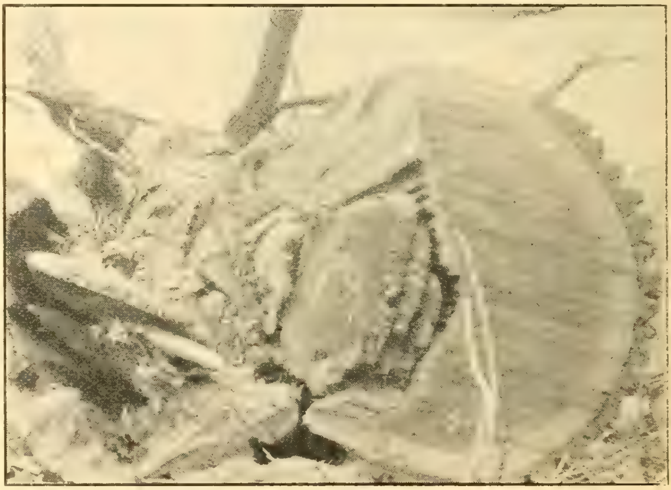
BY A. ROWLEY

I am sending three snap shots taken while we were transferring a colony from a bee-tree to modern quarters.

I used to keep a few colonies as a hobby in Ontario, Can., and on moving here I set about finding some more. Last spring I secured two colonies from trees.

Lexington, Tex., March 15.

Section of a tree containing a colony of bees which A. Rowley transferred to a modern hive.



The log split open, showing the combs, the outside one of which contains a little brood.

The bees safe in their new home; the four-year-old boy hunting for the queen.

SOME EXPERIENCES OF THE SEASON OF 1914

The Man Whose Honey Gave Him a Panic

BY OREL L. HERSHISER

Originally Read before the Convention of the Ontario Beekeepers' Association

Once there was a beeman who got a bumper crop of honey and then some. At first he was happy, and had visions of wealth; but when he read in the papers that nearly all who kept bees had bumper crops also, some much larger than his, and that the "land flowed with honey" as well as with "milk," he was alarmed. He cried, "This is more sweetness than the people can eat. Surely this business has been overboomed, for beemen have suddenly become as the sands of the sea in number, and honey has deluged the land. Our hives and bees will avail us nothing henceforth." Straightway he "went to it" and sold his bumper crop for a sum not greater than he had received for meager crops in other years; for many other beemen thought likewise. Honey was fairly thrown at the buyer, and was easy of purchase, for the offerings were many and great.

But the following season was a lean one; and as the last prospect for a honey crop faded away, and orders had to be refused, he soliloquized: "Last season I received little better than a song for my bumper crop, and demoralized my market; and this year I have little to sell. What little I have is 'going some.' Bees and beemen do not seem too numerous, and honey especially is not too plentiful. The honey flood has subsided, and I calculate that last season's and this season's crops amount to not more than an average for the two seasons. If I had carried over to this season such part of last season's crop as could not be sold at a fair price, I might have realized handsomely for all of it, and be 'bones and beans' ahead. But I let that bountiful gift of nature slip away from me for nearly naught. *Good night.*"

Moral:—Don't get a panic when you get a good crop of honey, and sacrifice it for a trifle, but "bide a wee" until supply and demand are normal.

The above fable illustrates one experience common to many beekeepers for the season of 1913 and 1914. But a few who do not attribute the bumper crop of 1913 especially to the efforts of colleges and beekeepers' associations to *train* thoroughly those who wish to engage in beekeeping, but, rather, as a phenomenon not likely to recur the second consecutive season, are enjoying the average returns from their apiarian investments by reason of the honey carried over from last season.

THE DISASTROUS EFFECT OF AN UNUSUAL SNOWSTORM.

To the north of an apiary, and about 150 feet distant, is a railroad embankment about twelve feet high, which would seem to furnish ample protection from wind and drifting snow from that direction. Some 700 feet to the west are houses and trees, and immediately to the west is the honey-house and other artificial windbreaks. Along the south side is a windbreak of old hives five feet high.

During the latter part of February last we experienced a fall of several inches of dry light snow accompanied by a brisk northwest wind that, notwithstanding the supposed protection, drifted the snow, not only around the hives, but into them, filling every space between and to the very top of the combs, and enveloping the cluster of bees. When first looked over, four or five days after the storm, 75 colonies out of the 108 contained live bees ranging from a handful up to strong colonies. Very soon they dwindled until but 43 colonies remained, nearly all of which eventually became reduced to what would amount to from very weak to strong nuclei, and 13 of these eventually became queenless. The blanketing of snow seemed to take the vitality out of those colonies that survived the immediate effects of the severe chilling. Colonies that, on first examination, seemed amply strong soon dwindled badly, and the loss of so many queens out of the 43 surviving colonies is attributed to the devitalizing effects of the severe chilling.

The colonies were normally strong in the fall when prepared for winter. About one third of them were in double-walled hives, well packed above. A part of the remainder were in single-walled hives in individual packing-cases; a few in packing-cases containing four colonies each; and four colonies in eight-frame single-walled hives, drawn into a cluster, two facing the same direction, and just opposite the other two, and each packed with an eight-frame hive-body full of packing. There was no noticeable difference in the wintering by the various modes of preparation except that three out of the four eight-frame hives came out much stronger than any of the others, which may have been due to their location near the honey-house and being better protected from the wind.

Another apiary of chaff hives on the south edge of a bush of tall second-growth timber, with a large neglected orchard immediately to the south, wintered 101 strong colonies out of 105. Another apiary, similarly situated, wintered with a slightly greater percentage of loss. About one-third of the colonies in this apiary were in double-walled hives, and the other two-thirds were in single-walled hives and packed in clusters of four each.

It is evident that hills and embankments do not always furnish proper protection from wind and snow; that the effectiveness of artificial windbreaks may be often overestimated, and that they often induce strong currents of air where least expected, as is shown by snowdrifts and clean wind-swept ground in apparently well-protected places.

Experience proves that fairly dense orchards or second-growth bush furnish the ideal protection from wind and snowdrifts, and that hills and embankments cannot be depended upon.

WHAT SIZE OF ENTRANCE, IF ANY, IS NECESSARY OR BEST FOR OUTOOOR WINTERING?

Various sizes of entrances to hives for successful wintering have been advocated. Those advocating the sealed cover, so called, want a large entrance or the full summer entrance. Those advocating absorbents immediately above the cluster seem inclined to the belief that it is desirable to have the entrance more or less contracted to insure best wintering. In all cases ample entrance for the bees to fly on warm days is advocated.

Contrary to anything I have heard or read on the subject, and at variance with any previous experience, a small apiary came under my observation last spring where the entrances to the hives had been closed with fly-screen. This was done to exclude the mice, but it also *included* the bees. In addition to the protection from mice furnished by the fly-screen, protection from wind from the west was provided by leaning a broad board up in front of the entrances of the hives facing westward. The hives were packed in the usual manner, in cases, except that one case contained eight colonies. They were unpacked late in April after the weather had been warm enough for flights on several days.

The remarkable thing about this occurrence was that every colony in the apiary (fifteen, I believe) was alive, and nearly all in excellent condition. That all the colonies were not overstrong was shown by the fact that one was wintered on four L. frames, and another on five. One of the stronger colonies had the entrance closed with dead bees from within, in addition to the fly-screen, in such manner as practically to exclude the air. Over the cluster was a quilt of burlap, and above this a packing of forest-leaves through which, of course, there would be a slow circulation of air. Now, what size of entrance, if any, is best, in view of this occurrence?

INTRODUCING A QUEEN BY THROWING HER AT THE COLONY, AFTER OTHER METHODS HAD FAILED.

Important discoveries are sometimes made by accident and in despair. Unusual methods are occasionally employed, not with any particular expectation of success, but because approved methods and treatments

This picture does not represent a new variety of fruit, but illustrates how a swarm settled down after finding the limb of a peach-tree too frail to hold them. They dropped off by handfuls, then started on a second branch. Finding that too weak for all of them they commenced a third as shown in the photograph. The swarm belongs to Aaron Radick.
White Plains, N. Y. HARRIET R. WHITAKER.

have failed, and there appears to be nothing else to do. Thus, accidentally, was introduced a queen to a stubborn colony by a method not heretofore tried by the writer.

A strong colony was made up of hatching brood, and a capped queen-cell given which the colony destroyed. A second queen-cell met with a like fate. An attempt to introduce a laying queen by the wire-cloth-cage plan resulted in failure. (This method, in brief, is the caging of the queen with young worker attendants from the colony to which the queen is being introduced, in a wire-cloth cage, on the side of a brood comb, preferably over hatching brood and over some honey, and kept so confined with the colony for from 24 to 48 hours before releasing.) After the colony had rejected the laying queen the presence of fertile workers was discovered, and the colony was treated by shaking the bees from the combs at the distance of about 100 feet from the hive, and giving them two more combs of brood.

A second attempt was made to introduce a laying queen by the wire-cloth-cage plan, which failed. I had a dark but otherwise desirable queen that had been caged and kept for a possible emergency for about three weeks; and when I experienced the second failure at introducing a laying queen I determined to try this one. Upon examination, however, I found her attendants all dead from starvation, and the queen so far gone she could hardly move. I thought it not worth while to try to introduce her, as she appeared almost dead. However, I opened the hive, dumped her on the center of the cluster, gave a puff of smoke on the top and at the entrance, and left her to her fate. She was accepted, and now heads a good colony. Is this the starvation method of introducing queens?

THE EXPERIENCE OF HOPE IN WHICH MOST BEEKEEPERS HAVE OCCASION TO SHARE.

The past season has come about as near to being a failure with many of us, so far as the honey crop is concerned, as has come within the memory of the present generation of beekeepers; but he lacks in wisdom who does not earnestly endeavor to rescue something of success out of failure. If the apiary has been kept up to full strength in anticipation of a forthcoming season of prosperity in honey production, a golden opportunity has been embraced. If any beekeeper's bees are still short of winter stores a golden opportunity is still his; for feeding is practicable, even in winter, and in the cellar or out of doors. The late summer rains came in time to save the clover and give it a vigorous growth, for many of us. We also believe the rains came in time to cause the basswood and fruit-tree buds to set for next season's blooming. With these fair prospects, and with the bees well cared for against the winter period, we cannot but indulge the hope of a good honey crop next season.

Kenmore, N. Y.

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PREVENTION OF NATURAL SWARMING RESULTS IN A MUCH GREATER YIELD

17,000 Lbs. of Extracted Honey from 74 Colonies, Spring Count, and Increased to 155

FROM THE LIVE OAK APIARY

Considering this a little above the average for this year in California I thought it might be of interest to some to know how the bees are managed. I have met quite a number of beekeepers since coming here, and I think every one prefers to let his bees swarm naturally; and the more swarms the better. I met one old gentleman who has been in the business here for over forty years, and practices cutting comb foundation in thick pieces, leaving a space in each lower corner of the frame so the bees can build drone comb. He gave for his reason that, the more drones a colony has, the more honey he would get. After quite a discussion he admitted he was doing the wrong thing; but the next spring I found him putting in foundation the same old way. Lots of people are so satisfied with the way they have been doing things that they want nothing better. Every beekeeper certainly needs to know how to work his bees on the very best plan possible for the best results.

It has been proven time and again by such men as Dr. Miller, G. M. Doolittle, and others that, in order to secure a big crop of honey, one must control swarming. The big colonies make the honey.

But they argue that the swarm and parent colony will make more honey than if kept in one. Let's see. Before a natural swarm comes off, the queen stops laying for from four to five days, and four to five more before she is at her best—twenty days before her bees hatch, and sixteen more before they become field bees—over forty days of the honey-flow gone. If no swarms, the queen continually lays, and field bees increase every day.

Last February I found my 74 colonies with very little honey and few bees; but the weather was warm and very favorable. The bees found plenty to support themselves, and they were going after it with all their might. I helped them all I could by changing the brood every ten days, placing the capped brood on the outside, as I thought it would stand more cold than the little larvæ and eggs. It is wonderful how they built up. As soon as five or more frames were filled with brood I put on the super (mine has eight frames), or second story. I took from the strongest and helped the weak until I had them all about equal.

Whenever a colony begins to prepare to swarm, or is crowded with bees, shake them. First set the old hive to one side and place a new one in its place with frames of empty combs or foundation. Then open the old hive, take from it a frame with eggs and larvæ, and the queen, and put them in the new hive. Put on the queen-excluder and a wire screen; shake two-thirds of the bees in front of the new hive, and place the two bodies with remaining brood and bees on top of the excluder and screen. Give a small entrance in the second story, so that all field bees can get out and return to the new hive. The screen keeps all the bees down with the queen, and the honey is stored below. This brings about conditions like those of a natural swarm.

In five days remove the screen, and in five days more cut out all queen-cells. In fifteen days from then time the bees were shaken, remove the queen-excluder to the top of the second story. The queen will at once come above and fill the second story with brood. When the queen was very prolific I used a fourth story. One colony on the scales from May 4 to June 9 averaged 9 lbs. per day. May 16 they made 20 lbs.

No increase was made until the end of the honey-flow. In raising brood to the third or fourth story the bees will build as fine queen-cells as in natural swarming. A week or ten days before the honey-flow was over I placed the excluder with the wire screen on under the top story, and gave them an entrance in the back and succeeded in mating a queen in almost every colony, so at the end of the flow I separated each colony, taking almost all the brood with the new colony, as all field bees would return to the old hive. This gave me a fair increase; and as there is some honey coming in all through July and August the colonies built up in fine shape. Ordinarily I would not have secured any surplus at all; so by having no swarms at or before the honey-flow the bees were kept constantly at work for me storing surplus honey, and the increase came at a time ujst as good for the bees, but much better for me.

My average was 229 lbs. per colony, besides over 200 lbs. of comb honey for home use.

The theory is, to keep more bees. This is certainly the very best advice. It does not mean a greater number of hives, but more in a hive; and especially at the time of the honey-flow.

Simi, Cal.

HOW MANY TRIPS TO THE FIELD DOES A BEE MAKE IN A DAY?

BY JOHN H. LOVELL

The attempt to determine how many trips to the field a bee makes in a day, recently described by Mr. Heberle, p. 904, Nov. 15, is certainly highly praiseworthy for the great patience displayed. A number of bees were marked with colors; and for 13 hours continuously, on July 15, Mr. Lunden watched the entrance of the hive for the purpose of determining how often the colored bees returned from the field. It is admitted that not infrequently they were overlooked, especially in the afernoon, when the observer became tired. The conclusions reached were that a field-bee makes about ten trips a day—a trip requiring from 30 minutes to two hours—on an average, about one an hour.

Clearly, the observation is only approximately correct, even for this particular day, since it was found practically impossible to record exactly the number of trips made by any individual bee for so many hours, where so many bees were constantly passing in and out of the hive. For any other day it might be very inaccurate. The number of trips a field bee makes in a day depends upon: 1. The distance of the honey-plants from the hive: 2. The abundance of nectar; 3. Temperature and weather; 4. Length of day; 5. Incidental factors; age and condition of bee, location of nectar in flowers; place of storage in hive, etc.

The best way to proceed, I think, is to make observations, not at the hive, but at the field end, and note how many visits an individual bee will make in an hour under ideal conditions to a quantity of free honey. In this way exact data can be obtained, which can be used as a basis for further estimates.

On Sept. 12 one bee was trained to visit honey placed on a glass slide about 100 feet from the apiary. The bee was kept under observation for 2 hours in the forenoon and 2½ hours in the afternoon. The visits were recorded as follows:

Bee came to honey	Bee returned to hive	Minutes at honey	Minutes absent
A. M.	A. M.		
10:04	10:09	5	
10:15	10:20	5	6
10:28	10:33	5	8
10:45	10:48	3	12
10:52	10:55	3	4
11:03	11:06	3	8
11:14	11:17	3	8
11:22	11:27	5	5
11:34	11:37	3	7
11:42	11:46	4	5
11:52	11:55	3	6
12:00 M.	12:04 P. M.	4	5
12:13 P. M.			9
For 30 minutes the bee was not under observation.			
P. M.	P. M.		
12:34	12:41	7	
12:46	12:52	6	5
1:08	1:15	7	15
1:26	1:33	7	11
1:44	1:49	5	11
1:57	2:05	8	8
2:11	2:20	9	6
2:27	2:36	9	7
2:45	2:51	6	9
3:00			9

In the forenoon the average length of 12 visits to the honey was about 4 minutes each. In the afternoon the average length of 9 visits was 7 minutes. In the forenoon the average length of the interval during which the bee was at the hive was 7 minutes; in the afternoon, 9 minutes. It will be noted that on the average the bee required in the afternoon 3 minutes more to load and 2 minutes more to unload than in the forenoon. The average number of minutes at the honey during the entire 4½ hours was 5 minutes; and the average number of minutes at the hive was 8 minutes. In some instances the bee flew about a little while before alighting near the honey. The average number of trips per hour was 4 2-3, which would be at the rate of 46 trips for a day 10 hours long. Where the conditions were ideal—for example, if the apiary were located near a large buckwheat-field or a basswood-forest—a bee would probably make about the number of trips stated.

If, however, the honey-plants were distant some two miles, then a much longer time would be required. I doubt if the flight of a bee will average more than 10 miles an hour; and very likely, when loaded, or it is late in the afternoon, or there is a strong wind, it will be much less. Assuming the rate to be 10 miles an hour, then 24 minutes would be required to make the round trip of 4 miles. Allowing 5 minutes to obtain the load, and 8 minutes to unload, then each trip would require 37 minutes; and there would be only 16 trips in 10 hours.

Again, if the nectar was deeply concealed, as in white clover, or was scarce, then the bee would be unable to gather a load in 5 minutes, but 10 or 15, or even a longer time, would be necessary, so that the bee would make but one trip each hour. It is clear that the number of trips a bee makes in a day varies constantly, and depends upon many factors; but under the most favorable conditions it probably very rarely or never exceeds 50 trips in 10 hours, ranging downward from this number to a few occasional trips made during the middle of the day.

Waldoboro, Maine.

[Is it not possible that, since the bees were working on honey instead of nectar, they became excited and worked more hurriedly than if they had been visiting flowers, and getting nectar instead of honey?—Ed.]

BEE PARALYSIS AND ITS VAGARIES

BY MAJOR SHALLARD

It seems to me that paralysis has considerably altered its nature or its effect upon the bees since it first appeared in Australia. The disease seems to have passed through a steady change, and the symptoms are quite different now from what they were at that time. So different are they that one is inclined to think there are two or more diseases. First, there was heat paralysis—a trembling disease which occurred only during very hot weather. The bees in considerable numbers would be hopping about in front of the hives and trying to fly, but they were not swollen in any way. We next got the swollen bloated bees, which crawled to the edge of the flight-board and fell off. This was much more severe; more bees were affected, and they died in heaps in front of the hives. Their bowels were obviously choked with fermented food, but they did not void any thing. Perhaps if they had they would have recovered. In the last stage, the one we have reached now, the bees are scattered thinly all over the apiary. There will be, say, a bee to every six square yards. They are not of the hopping variety, like the first stage, neither are they swollen. To all appearances they are just ordinary bees which are running about the ground, and for some reason cannot fly. If you watch closely you will find that some of them (what percentage I cannot say) will succeed in flying; but the bulk of them will get slower and slower in their motions, and eventually die. If this were all, the trouble would not amount to very much; but it is not. It is only the small end of it.

The disease attacks the bees very suddenly. A bee is, so to speak, well one minute and dead the next; and for every one that dies in the vicinity of the hive, twenty die in the fields. Occasionally, when I have been eating my lunch near an apiary, bees passing overhead have fallen dead in my lap. It is quite a common thing to find bees affected in front of the hive, loaded with pollen.

I have mentioned before in GLEANINGS what is locally known as "disappearing disease." Last winter I and many others lost a lot of colonies through it, and I discovered an isolated case of it in the apiary about an hour ago. It was a single-story hive to which I had given a pure queen from a nucleus six weeks before. At that time it had four frames of brood and plenty of honey and pollen; and for the amount of brood it was well off for bees. I opened the same hive this morning and found one piece of brood not two inches across, plenty of pollen and honey, and about sixty bees and the queen. All the rest of the bees had "disappeared." I do not know what causes this disease, and I do not know any one who does; but I *think* it is caused by a malignant attack of the sort of paralysis last mentioned, where the bees die while out foraging. I know this condition of affairs is sometimes brought about by shortage of pollen; but in this case there was plenty of pollen and a young queen about a month old whose sisters are doing well in other neighboring hives. If mine is not the right explanation of the cause of the trouble, what is it? The vagarious phases of paralysis have puzzled me.

Mororo, N. S. W., Australia.

◆

BEE TREE STRUCK BY LIGHTNING

BY JOHN E. KEEFER.

On July 27, 1913, lightning struck a large chestnut-tree only a few hundred yards from my home. After the rain my brother walked to the tree to see the damage done, when he noted some bees flying about. Calling me we made an investigation and found that the tree had been the abode of a colony of bees. Lightning struck off the upper part of the tree, but did no damage to the trunk and lower part, in which the bees were located.

We decided to cut out the combs, expecting a lot of honey, as this was a very good season for honey; but when we had a hole cut in we saw a pitiful sight. Since the tree was hollow, the lightning struck down the inside of it and actually tore the combs to pieces. All that was left was a conglomerated mass of honey, combs, dead bees, brood, rotten wood, and a few demoralized bees.

It was a fine Italian colony, and no doubt the one that left me the June before without as much as bidding goodby. "The way of the transgressor is hard."

I hope the other bees in my apiary may take this as a warning and never abscond.

Millersburg, Pa., Aug. 8.

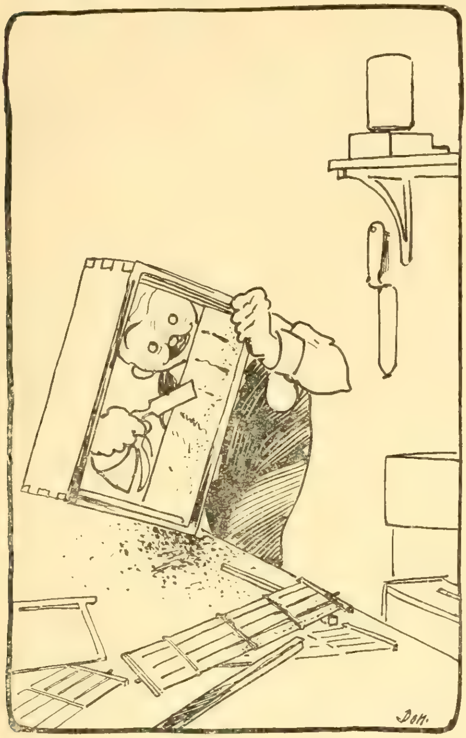
Beehives in Winter

BY GRACE ALLEN

Still—so still—so strangely still!
No gleam of flashing wings.
The days are miserly and chill.
My hives are still—so strangely still—
And nothing ever sings.
Pale and wan the shivery hours
Are utterly bereft
Of warmth and glow and scent of flowers;
Of flaming summer's perfumed bowers
Not one is left.

O silent home! so like a tomb;
Is every fair hope dead?
O dreamers in your shadowed room,
Huddled close in dusky gloom,
Have all your visions fled?
Not so? Then tell me, you that dare
To soar through sunlit gleam,
When skies go dark, and, through gray air,
Unfriendly winds blow everywhere,
How do you keep your dream?

Heads of Grain from Different Fields



THE BACKLOT BUZZER

If propolis is a secretion, why the Sam Hill don't they use it with discretion?

Winter Cluster—Where should it be in an Outdoor-wintered Colony at the Beginning of Winter? Importance of Windbreaks

I am using a double-walled hive, and am going to winter outdoors. Now, I was told that I would surely lose my bees for the reason that they cluster below the frames; and as there was little room, I ought to put a three-inch super on the hive *bottom* to give them this needed space to cluster. I have only single-walled supers, and know that wouldn't do under a double-walled hive. Tell me about it. Will they go through as the hive is, or should I put a super under? They are heavily loaded with stores for winter; in fact, combs are nearly full, as I took my supers off early to let them fill up and also fed them well.

Cedar Rapids, Ia. H. L. WALKER, M. D.

[There is no reason why you should lose your bees in the double-walled hive. It does not need an extra super under it nor one on top. The fact that the bees are low down on the frames near the bottom-board is just exactly where they should be. If they were up near the top-bars there would be danger of your losing them before spring. The further fact that the combs are filled with stores is another thing in their favor; and the only place they should cluster is near the bottom, just as you find them in your hive. If your colony is of fairly good strength there is no reason why you should lose the bees unless you leave the hive exposed where the piercing winds from a level stretch of country would strike the hive hard. If the hive is shielded by windbreak in the form of fences, shrubbery, or buildings of any sort, there is no reason why you should not get good results in wintering. In cold weather the cluster ordinarily is not much larger than a double fist. As it warms up to a temperature of about 50 or 60, the bees, if the colony is strong enough, should cover nearly all the frames; but when the temperature drops down to about 10 degrees above zero, especially if there is a high wind, or if it is below zero and still, the cluster will shrink down to about the size of the double fist, as first mentioned.—ED.]

Hand's Convertible Hive; Further Particulars Concerning It

Mr. J. E. Hand:—I read with interest your articles on the 16-frame hive in the *American Bee Journal* and GLEANINGS; but while, to an experienced beekeeper, your description may be all that is necessary to me as a beginner, some of your statements are not as plain as they might be.

If your hive is such an improvement on other makes, why don't you give us all the details, so that some of us can make and try them? Would you advise a beginner to start with such a hive, or had he better take one like the ten-frame dovetailed?

As I understand your article in GLEANINGS for Nov. 15 there must be a duplicate hive for each colony when you divide it into two of eight frames each and pack for the winter. What is done with these extra hives the following spring? Are the 16 frames united into one colony again? Is there an entrance at the bottom on one side, so that the bees can reach the entrance to the hive proper? Are the 16 frames placed in the hive parallel to the entrance, like Arthur Miller's, or at right angles in the regular way? Should you write another article for the journals I hope you will make the description of this 16-frame hive so plain that a novice can understand unless you intend to manufacture and place on the market these hives yourself.

Reading, Pa. H. B. SHOLLENBERGER.

[Mr. Hand sends the foregoing and his reply to us. As others are doubtless interested, we are pleased to place them before our readers.—ED.]

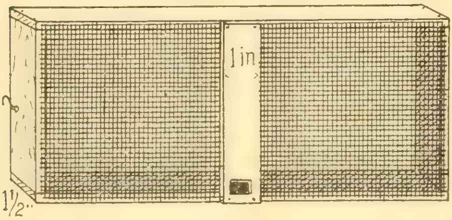
I am not advising any one to adopt the Convertible hive; but if you feel the need of improvement in hive methods it may help you. In construction it is exactly like the two-story dovetailed hive except in length. As we now make it, it is 20 x 24, with 14 frames and a ⅞ division-board, and frames parallel with entrance in summer, and at right angles to it in winter. The wintering equipment is a simple box without cover or bottom, made of half-inch stuff, 13 inches wide and 12 deep. To prepare for winter, assemble eight of the best-filled combs, including the bees, within said box, and place it on the floor inside the hive, with frames extending at right angles to their former position, and at right angles to the hive entrance, which is at the end. This creates a liberal space surrounding the inner chamber except the end having the entrance, which faces south or east, and is protected by a heavy sheet of flax-board paper between the two hives, the two entrances corresponding in position. The deep inner chamber creates a liberal space under frames, and the top story of the hive holds packing material above. The hive is not moved, nor the entrance changed in position or appearance. Increase is optional.

Birmingham, Ohio. J. E. HAND.

A Device to Stop Robbing

I give you a device I use to stop robbing—the worry of most beekeepers at times. No article I ever used seems to hit the spot, and trap hives are a bother, besides killing bees that are following their natural instinct. With my plan the home bees do what killing is to be done, and even a small nucleus will take care of itself.

I take a frame about an inch deep, and of any size to suit the hive to be protected, so as to cover the whole entrance and to extend five or six inches up the hive-body. I cover the frame with wire screen, and across the short way of this frame (which would be vertical when put on a hive) I nail a thin strip of wood, say about an inch wide. At the bottom I cut a hole half an inch square through this thin wooden strip and screen. This hole will be in the center, and on a level with the hive entrance. Now the protector is ready for the fastenings, which can be hooks, to slip over nails or screws on the sides of the hive, or the frames may be toe-nailed into the front of the hive.



The principle is this: Robbers, whether insects or men, know they are doing wrong, and so try to get in and out by attracting as little attention as possible; so when they fill up and get to the light at the hive entrance they think themselves safe, and start to fly; but the screen stops them. The home bees nab them; and if they get away from one, there is another ready for him; and you will find very few robbers get away to bring others. They are kept too busy to take time to find the opening they came in at. On the other hand, the home bees can get into their own hive with little trouble; and, while it bothers them to find their way out, yet they soon get "on to it;" and during their search they find the strange bee in the same boat, and finish him; for if he does break away from one he runs into the arms of another. It is but a short time until the home bees begin to stand guard at the opening; and if a few pass the sentries they never get out alive.

I have used this protector on strong and weak colonies, and it has never failed to stop the robbing. By "strong" I mean when feeding is going on in the spring, before the summer strength has been attained.

Hartstown, Pa. **Lewis M. Shafer.**

Dequeening without Requeening to Prevent Swarming

In Gleanings for Oct. 15, page 805, appears an article by J. E. Hand relative to "Requeening without Dequeening." I wish to know if the hole is made in the super so the virgin can go out and be fertilized, and return to that super, and whether, as soon as she begins to lay, she is allowed to go below. Will she take the place of the old queen the same as a virgin would?

Phoenix, Ariz. **B. Jones.**

[This was referred to Mr. Hand, who replies:]

In requeening by the virgin-queen method without dequeening, some have reported the virgin killed instead of the old one. Perhaps it will be safer to remove the old queen and substitute a ripe queen-cell, for bees have a decided antipathy against virgins when eggs and larvæ are present. If done just before the old queen reaches the zenith of fertility it will prohibit swarming with large hives; but reports show that it is not uniformly successful with small hives. It is virtually the same method practiced by Dr. Miller with eight-frame hives. Any thing that restricts queen fertility will cause swarming; hence undiminished queen fecundity, coupled with large hives, is immune from swarming. Any attempt to have a queen fertilized in a hive with a vigorous queen will ultimately result in failure where bees have access to both queens through perforated metal.

Birmingham, Ohio. **J. E. Hand.**

Beekeeping and Pigeon-growing

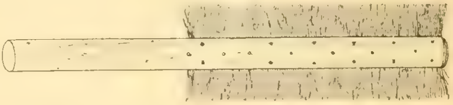
I have some bees here in Arizona, but not enough to make my living with, and there are not any more locations that I know of that would pay to locate bees on; so now I should be pleased to know if you think raising some pigeons would pay along with my bees, as I should like to have something besides the bees to make my living, so if we have a poor year for honey the pigeons would help out. I think there would be a good market for the pigeons, but I would have to ship them to Phoenix, which is 35 miles from here.

Buckeye, Ariz., Nov. 17. **Albert J. Ross.**

[We do not know very much about the business of raising pigeons, but doubt very much if you would find it a profitable industry to work along with the keeping of bees. Perhaps some of our readers could inform us. Poultry-raising or fruit-growing go very well with the keeping of bees, and we should be inclined to think that you would do better to adopt one of these in place of the business of raising pigeons. In the last edition of our A B C and X Y Z of Bee Culture we have articles on beekeeping and poultry-raising, beekeeping and fruit-growing, and beekeeping and gardening combined.—Ed.]

Bee-brush Made of Rope

I have several little conveniences that I use in my apiary, one of which is a brush for clearing the combs of bees. Take a round stick, 16 inches long, and with a rip-saw divide it for about 9 inches, leaving the other end for a handle. Take a piece of one-inch manila rope 6 inches long, and with the strands fill the opening in the stick, allowing them to project on both sides of the stick. At the end secure it with bee-wire and securely nail the stick with one-inch brads. This makes the best brush I have seen, and is almost indestructible.



Another convenience is my covered hive-seat and tool-box. My hive-seat is 14 x 16, with a pocket on each end 6 x 14. These pockets come within an inch of the top, and a cover is made to telescope over the seat and rest on the top of the pockets. Under the seat I have my smoker fuel; in one of the pockets my smoker, and in the other my tools. The framework of the cover is made of ⅞ x 1½-inch white pine. The roof is rubberoid. Every thing under it keeps dry, though I leave it standing in the apiary all summer, and at the same time I take no chance of setting any thing on fire in the honey-house.

Milo, Ia. **B. A. Manley.**

Apparatus for Setting Wedges in Top-bars

I believe I have an improvement on the ordinary method of putting in wedges. My work-bench is about two feet wide, and the wedge-setting apparatus is about the middle of it, so I have plenty of room to work in front of it.

In using it I start the wedge at the left end, draw my right hand along, thus starting the wedge in the groove its full length. This leaves one hand at each end of the frame. It is lifted over the part of the machine that projects above the bench, and is pulled up square against uprights. One quick pressure on the foot lever then forces the wedge home. The weight lifts the wedge-driver up as soon as the lever is released. It should be so hung that it rests upon the foot-lever when it has raised the driver about two inches.

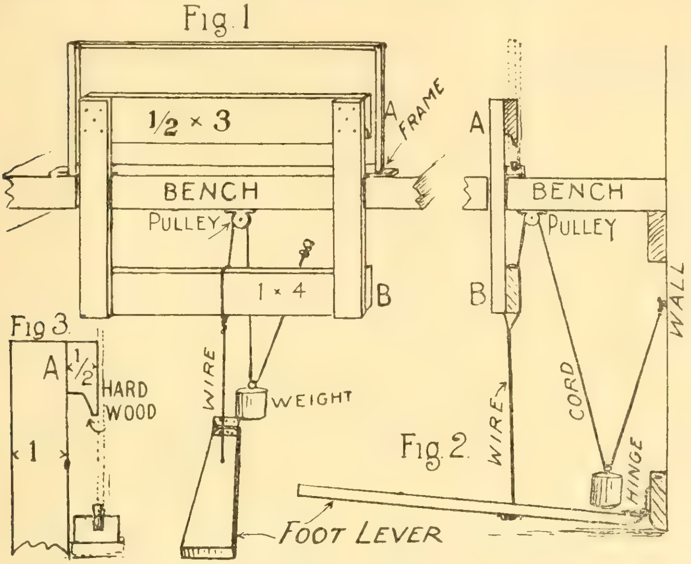


Fig. 1

Fig. 2

Fig. 3.

The driver should be about half an inch shorter than the inside of the brood-frame so as to work easily.

This device is very easily made, and its use leaves both hands free to hold the frame.

Hobart, Ind. Joseph M. Mundell.

Willow-herb with a White Blossom

I should like to ask you concerning a plant growing here in the burnt-over districts of northeast Minnesota which seems to resemble in every way but one the willow-herb described in the A B C book. The one differing characteristic is that this plant has a white blossom instead of pink. What is it? Another question:

When I divided swarms last summer, changing the position of the old hive and putting a new one on the old stand, why did the old bees not return to the old locality instead of nearly all, as it seemed, staying in the old hive, thus leaving the new colony very weak?

Markville, Minn., July 31. Frank A. Grace.

[Undoubtedly the plant you mention is the willow-herb, for very often the blossoms are white instead of pink.

Probably your old colony was not far enough away from the new hive on the old stand so that the bees found it and returned to it instead of remaining on the old stand with the new colony. It depends somewhat upon the bees, some bees seeming to have extraordinary ability to find their old hive even though the latter be shifted to a new location.—Ed.]

Bee-stings for the Cure of Alcoholism; Will Combs Placed Crosswise in a Super Prevent a Queen from Laying therein?

The following item from *L'Apiculteur* can hardly fail to interest the readers of Gleanings:

"The physicians of a London hospital have recently, by pure accident, discovered bee-stings to be efficacious in the treatment of alcoholism. Five men, of whom four were inveterate alcoholics, were treated at this hospital for chronic rheumatism by bee-stings. Besides a great improvement in the state of the patients, the physicians observed with astonishment that the treatment had done still more—it had caused them to lose the taste for alcohol. After leaving the hospital the very sight of alcohol nauseated them, and for several months none of them have touched the bottle."

In a back number of *L'Apiculteur* it is stated positively that the queen will not lay in the super if the super combs run crosswise the brood-frames.

F. L. Pollock.

Stouffville, Ont.

[There must be some mistake somewhere, as we do not believe that any reputable bee journal like *L'Apiculteur* would make or allow a statement to be made in their columns that a queen will not lay in a super with the combs running crosswise of those in the brood-nest. At all events, it is not true. Queens will seldom lay in a comb-honey super, no matter how the sections are placed with reference to the combs in the brood-nest. In an extracting-super the queen will go above if she is crowded below, no matter how the combs are above.

The statement of the effect of bee-stings on alcoholism is interesting and valuable if true. Does any one on this side of the great pond know?—Ed.]

Is it Feasible to Send Bees in Carlots in Cold Winter Weather?

Knowing that you have had a great deal of experience in shipping bees I should like to know if it would be safe to ship a carload of bees, say about Christmas, from northern Iowa to northern Minnesota, a distance of about 350 miles.

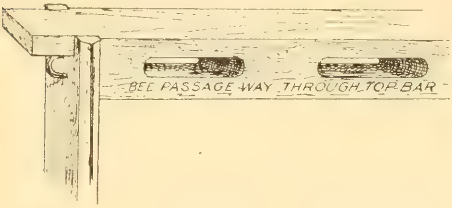
Lime Springs, Ia. O. S. Frankson.

[We see no reason why you should not be able to ship your bees at the time stated. We have moved bees by sled in the very coldest winter weather, and found that those bees came out in the spring in fine condition. We see no reason why you could not move them by rail just as well. There will be no danger of the bees suffocating if it is cold; and, in fact, it is our opinion that bees will go through better in cold weather than during hot.

In Gleanings for June 1 and the July 15th numbers you will find the plan that we used in moving bees south and back again. While it is not quite the same as we use now, it would work very well for a small number of colonies. One thing to bear in mind is that the hives must be loaded so that combs are parallel with the track or rails.—Ed.]

Horizontal Openings through the Top-bars

I am a beekeeper of fifty years, and have had quite good success in wintering out of doors. For many years I have placed a Hill device of some sort between the frames and enamel cloth; and now the idea has struck me, "Why not have a passage through the top-bar for all seasons?" It seems as though it would be a great help to the bees in summer working as well as for winter.



My beeyard is enclosed by an eight-foot board fence on three sides—about a quarter of an acre; then it is grown up with trees—a sort of an idlewild, with evergreen windbreaks near by, so it is well protected. My bees winter better than those of most beekeepers here.

I have taken Gleanings from the first number. I keep about forty colonies, and am engaged in general farming, and mix in beekeeping.

South Lyon, Mich. Alonzo Bordon.

[Passageways through the top-bars have been suggested, but it is doubtful whether the advantage thus secured would pay for the comparatively great expense of cutting the holes.—Ed.]

Why the Old Bees Leave the Hive to Die.

It's strange how popular beliefs cling—page 867, Nov. 1, T. P. Robinson. The facts are, that no kind of bee leaves the hive with the express purpose of dying. Bees die in the hive in cold weather, and are carried out on warm days and dumped in front. They do the same thing when kept in for any reason. When a bee wants to leave the hive it tries to do so by wing; but if it can't do so by wing it will go on foot, and, more than likely, never be able to get back, and consequently it will perish.

Galena, Kan., Nov. 5. J. P. Brumfield.

Geese for Keeping Grass Down

On page 719, Sept. 15, Mr. A. J. Halter gives his experience with rams in the apiary as mowing-machines; but it does not seem to have been a great success, as he intends to try ewes next year. I'm afraid he will not improve matters, as they are just as likely to knock the hives over as the rams have done; but if he will try a few geese they will crop the grass bare, and not interfere with the bees in any way. I keep sheep, geese, and bees.

W. A. Teare.

N. Ballabey, Isle of Man, England.

Do Not Stir the Syrup when Making Candy

Please tell our brother from St. Paul, Minn., page 153, Feb. 15, that his trouble is that he stirs the candy while it is boiling. That is why it goes back to sugar again. I had the same trouble as long as I stirred it. He should boil it slowly and not stir. Then it will come out all right, and the quality of the candy will be good. I tried about four batches before I got one that was all right.

Tingley, Iowa, Feb. 21. F. G. Hausz.

Beekeepers, as a Class, Temperance Men

We had the annual meeting of the Maryland State Beekeepers' Association this week, and were fortunate enough to have with us Mr. W. A. Selser, of Philadelphia, who gave us a very interesting address. We then went out to a dinner given by the Baltimore Beekeepers' Club at a hotel with bar attached; although we had about 30 to dine, nearly in sight of the bar, not one took a drink of any kind. which I think speaks very well, as we have men of all classes in the club.

Baltimore, Md., Nov. 23. S. G. Crocker, Jr.

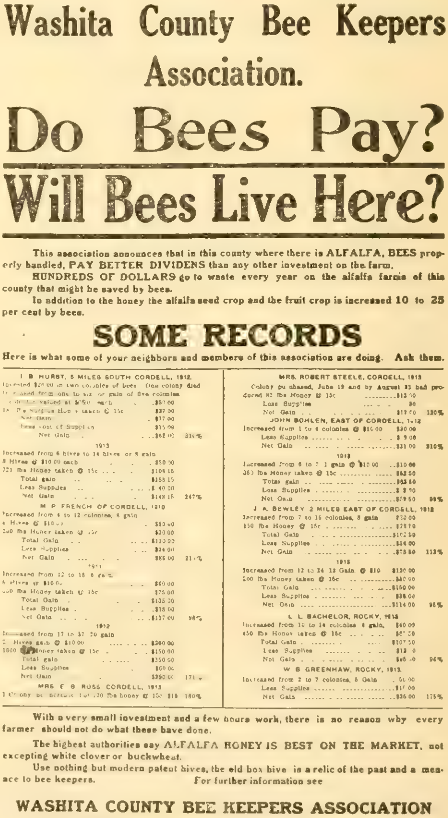
[The same thing has been noted at other conventions of beekeepers when they met at hotels. Men who produce honey are a dry lot.—Ed.]

County Association Advertises Bee Business

We are getting a lot of alfalfa in this country, and only in the last two or three years did people think bees would live here. A few of us have bees, and have done well here. There are very few in the county. I have 70 colonies, which is the largest apiary in the county. For the last two years some of us have had to fight foul brood. We organized a county association to fight this, and, in general, promote the business, and have had several very profitable meetings.

To advertise the business our association made an exhibit at a recent county "silo school," where all the best farmers come. As secretary of the association I had printed a little statement of what some of the beekeepers here have been doing. We have a fine bee country here, and our association is going to develop it.

Cordell, Okla., Dec. 2. A. W. F. Lee, Sec.



Washita County Bee Keepers Association.

Do Bees Pay?

Will Bees Live Here?

This association announces that in this county where there is ALFALFA, BEES properly handled, PAY BETTER DIVIDENDS than any other investment on the farm.

HUNDREDS OF DOLLARS go to waste every year on the alfalfa farms of this county that might be saved by bees.

In addition to the honey the alfalfa seed crop and the fruit crop is increased 10 to 25 per cent by bees.

SOME RECORDS

Here is what some of your neighbors and members of this association are doing. Ask them.

I. B. HURST, 5 MILES SOUTH CORDELL, 1912.
Invested $20 00 in two colonies of bees. One colony died. Increased from one to six or gain of five colonies.
5 colonies valued at $10.00 each . . . $50 00
180 lbs Surplus Honey taken @ 15c $27 00
Net Gain . . . $77 00
Less cost of Supplies $15 00
Net Gain . . . $62 00 310%

1913
Increased from 6 hives to 14 hives or 8 gain
8 Hives @ $10 00 each . . . $80 00
721 lbs Honey taken @ 15c . . . $108 15
Total gain . . . $188 15
Less Supplies . . . $ 40 00
Net Gain . . . $148 15 247%

M. P. FRENCH OF CORDELL, 1910
Increased from 4 to 12 colonies, 8 gain
8 Hives @ $10 00 . . . $80 00
200 lbs Honey taken @ 15c $30 00
Total Gain . . . $110 00
Less Supplies . . . $24 00
Net Gain . . . $86 00 215%

1911
Increased from 12 to 18 6 gain
6 Hives @ $10 00 . . . $60 00
500 lbs Honey taken @ 15c $75 00
Total Gain . . . $135 00
Less Supplies . . . $18 00
Net Gain . . . $117 00 98%

1912
Increased from 17 to 37 20 gain
20 Hives gain @ $10 00 . . . $200 00
1000 lbs Honey taken @ 15c . . . $150 00
Total gain . . . $350 00
Less Supplies . . . $60 00
Net Gain . . . $290 00 171%

MRS. E. B. ROSS, CORDELL, 1913
1 Colony no increase but 120 lbs honey @ 15c $18 180%

MRS. ROBERT STEELE, CORDELL, 1913
Colony purchased, June 19 and by August 23 had produced 82 lbs Honey @ 15c . . . $12 30
Less Supplies . . . $0
Net Gain . . . $12 30 120%

JOHN BOHLEN, EAST OF CORDELL, 1912
Increased from 1 to 4 colonies @ $10 00 $30 00
Less Supplies . . . $ 9 00
Net Gain . . . $21 00 210%

1913
Increased from 6 to 7 1 gain @ $10 00 . . . $10 00
350 lbs Honey taken @ 15c . . . $52 50
Total gain . . . $62 50
Less Supplies . . . $ 3 00
Net Gain . . . $59 50 99%

J. A. BEWLEY 2 MILES EAST OF CORDELL, 1912
Increased from 7 to 16 colonies, 8 gain $80 00
150 lbs Honey @ 15c . . . $22 50
Total Gain . . . $102 50
Less Supplies . . . $24 00
Net Gain . . . $78 50 113%

1913
Increased from 12 to 24 12 Gain @ $10 $120 00
200 lbs Honey taken @ 15c . . . $30 00
Total Gain . . . $150 00
Less Supplies . . . $36 00
Net Gain . . . $114 00 95%

L. L. BACHELOR, ROCKY, 1913
Increased from 10 to 14 colonies 4 gain. $40 00
450 lbs Honey taken @ 15c . . . $67 50
Total Gain . . . $107 50
Less Supplies . . . $12 00
Net Gain . . . $95 50 96%

W. B. GREENHAW, ROCKY, 1913
Increased from 2 to 7 colonies, 5 Gain . $50 00
Less Supplies . . . $14 00
Net Gain . . . $36 00 175%

With a very small investment and a few hours work, there is no reason why every farmer should not do what these have done.

The highest authorities say ALFALFA HONEY IS BEST ON THE MARKET, not excepting white clover or buckwheat.

Use nothing but modern patent hives, the old box hive is a relic of the past and a menace to bee keepers. For further information see

WASHITA COUNTY BEE KEEPERS ASSOCIATION

John Bohlen, President. A. W. F. Lee, Secretary.

A. I. Root OUR HOMES Editor

The effectual fervent prayer of a righteous man availeth much.—JAMES 5:16.

His delight is in the law of the Lord; and in his law doeth he meditate day and night. . . . His leaf also shall not wither; and whatsoever he doeth shall prosper.—PSALM 1:2, 3.

In our recent talks about answers to prayer there is one point upon which I did not touch; and I think it is a point where skeptics and infidels and everybody else will agree, or pretty nearly so. I can illustrate it by two incidents that happened years ago.

About twelve miles north of Medina, on the road to Cleveland, there used to be a fruit-grower and market-gardener. He was quite successful when he could keep away from the saloons of the great city of Cleveland; but whenever he took a load of fruit or produce to the city, some one would ask him to have a drink; and too often his money from the crop that his busy wife and children had helped to produce and gather went into the till of the saloon-keepers. Finally one fall, when he had some extra-fine grapes, his wife, fearing to trust him in the city, persuaded him to take his load to Medina. In order to hold it all in good shape he put on a big hay-rack which was covered with baskets of nice grapes with other produce in the middle of his load. There happened to be a scarcity of fruit and vegetables at that time, and in a little time he sold out for something like $40.00 in cash. At this point his *duty* was to go straight home. His wife and children needed the money for clothes, shoes, etc., for the coming winter. But some evil genius who knew his weakness asked him to have a glass of beer. At that time there were four saloons running in full blast in our little town of Medina. There was a saloon close by each one of our three churches, and a saloon down by the railway. After Mr. B. had taken "one drink"(?) he proposed to go straight home; but I am sorry to say that at that time in our history, some thirty years ago, there was almost always a crowd of loafers waiting for such a victim. They gathered around Mr. B. and asked him to "treat." Under the influence of the one drink he "mellowed up," as we might say, and, as a matter of course, decided he could *afford* to celebrate his good luck in selling out by giving the crowd a little treat. After they had had a drink all around, the whole tribe marched over to another saloon and then to another; and by the middle of the afternoon somebody told me that he was not only treating the whole crowd in every saloon in town, but some of the crowd following him, who had been careful not to drink *too* much, asked him for the loan of a dollar; and then some one else of the crowd said that *he* needed to borrow a dollar. Before night his money was all gone. He had made the rounds of the saloons, even the one down by the railroad, half a mile away. His last copper was gone. His good friends loaded him on his wagon and started him home. I went to an attorney and asked him what could be done about it. He said nothing could be done unless Mr. B. would consent to testify against his chum friends.

Now, here is the point I wish to make to you concerning the power of prayer. I was indignant to think that our town should be so cursed by these "enemies of all righteousness," and prayed that God would direct me. At that time I was conducting a Sunday-school in Abbeyville, where there was a saloon and also a brewery. This afternoon Sunday-school was on the road to Mr. B.'s place; but he lived about seven miles further on. After Sunday-school I drove out to his house. I reached there toward nightfall. I do not think I had ever talked with him, although I knew him by sight. You may be sure I prayed over the matter more or less during that twelve-mile trip with horse and buggy. I knew it was a delicate matter to go into an intemperate man's home, and to attempt to talk with him; and I was a good deal discouraged when I found myself a very unwelcome visitor. The good wife especially almost resented interference from a stranger, and Mr. B. would not talk at all. They evidently were anxious to get rid of me The sight of the poorly dressed wife and children, and the scanty furnishing of the humble farmhouse all together, made me feel that my visit was an intrusion, and that I had made a mistake, even though I *had* prayed to be guided. With a sad heart and a discouraged feeling that none of you can understand unless you have "been there," I approached the door. In almost complete desperation that little prayer came once more, "Lord, help!" I do not know but it is a *good thing* for us, dear brother and sister, to become discouraged once in a while. As a rule our prayers are only half prayers unless we are in a *tight place* somewhere. Well, just after that brief mental prayer it occurred to me there could be no harm in asking them to kneel with me while I prayed for the father and mother, and for the children huddled together in silence in that little home. They consented to kneel down. At that time I was comparatively new in the Master's service and training, and my prayer would not compare at all with that of an educated minister of the gospel; but as I finished and rose up, I was astonished to see the mother in tears. By the way, friends, mother's tears—*sometimes*—move mountains. The mother broke down completely, and amid her sobs she made a complete confession. She said, in substance, "Mr. Root, you do not know how we toiled and slaved all summer to get up that nice load of grapes and other things. We were all sadly in need of shoes and clothing. In fact, we have not been to church or Sunday-school, because we have not things fit to be seen like other folks. I looked forward to the time when with the proceeds of this load of stuff we could get shoes and clothing; and when my husband came home with his money all gone, and hardly able to put out his team, I felt as if I should *have* to give up."

By this time the tears were running down the face of Mr. B. also, and with broken words he said he would do any thing in the world to follow me, in any course I could point out, in order to be *free* from the "demon" of drink.

Do you think, friends, I drove home in the dark discouraged? Bless you, no. Although it was a long cold drive over roads such as we had in olden times, I felt happy, rejoiced at *one more victory*, and sang praises all the way. Next Monday morning, according to promise, my friend was on hand. The common-pleas court was in session here then. He went before the jury and told them there as much as he could remember. He could recall loaning the money right and left, but remembered *positively* only one man—one to whom he had "loaned" a two-dollar bill. He and I went to see this man, and the man made an excuse for his part of the transaction as follows: He said the crowd was going to get all the man's money, and he decided he would get what he could, and *give it back to him* as soon as he could find him sober. This was the saloon-keeper's excuse for his part of the transaction. You can take it for what it is worth. All the rest of the crowd who had followed him all day long denied getting any of his money. This was a good example illustrating the sort of *friends* a man has when he treats the crowd.

Well, the outcome was such a shaking-up in the saloon business of Medina as it never had before. The one down by the railroad quit business, or at least it quit an *open* business; and the whole matter was only a prelude toward making Medina dry. Before another Sunday came around a certain business man of Medina called on me and said something as follows: "Mr. Root, your starting Sunday-schools and looking after the children, teaching them texts, etc., is all right. Nobody makes any objection; but when you get out of your beat, as you did last Sunday afternoon, and start up trouble by poking your nose into other people's business, you are out of your place; and I warn you that *you* will get into trouble if there is any more of it."

I do not remember what answer I gave him, but I had a feeling in my heart that reminded me of the words of Peter—"We ought to obey God rather than man."

Now, friends, the above is an illustration of the answers to prayer which I think none of you will object to, no matter *what* may be your belief. If prayer helps us to accomplish results that could never be brought about otherwise, by all means let us pray *while* we work.

Just one more point right here:

Of course I knew that many men start out like Mr. B. with faithful promises, and yet they are tripped up by devils in human form. I went to the pastor of the little church nearest their home. I told him all the circumstances, and he promised to look after Mr. B. with fatherly care. In due time I received word from the pastor, saying that the whole family were going to church regularly, and gave abundant promise of good results; and Mr. B. told the good pastor that my visit to him did more good than any thing that had ever happened during his whole life. Whenever he came to Medina after that he came to my store first to let me see that he was keeping the promise he made before God, and before his wife and children. He died years ago, a sober man, and I have reason to believe he never drank a drop after that Sunday night.

"He that converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins."

Now, while this matter is before us let me give you another illustration. Four miles west of us is a place that used to be called York Center. There has never been a saloon there, although I think liquors were at an early day sold at a hotel there. One Sunday after church here in Medina a good brother spoke to me something as follows: "Mr. Root, unless you stop it, a saloon will be opened to-morrow morning at York Center. A room has been rented, the liquors purchased, and they are standing in the box to be put out on the shelves to-morrow morning."

"But," said I, "Mr. C., why should *I*

stop it? Have the good people at York no objection and no interest in the matter?"

"I do not know any thing about that, Mr. Root; but a saloon is going to be opened, as I told you; and if you do not put a stop to it I do not know who will. In fact, I do not think anybody else will bestir himself unless you do, as I say."

I tried to shirk the responsibility as no affair of mine; but I could not get rid of it. It was on my conscience. I do not know but I felt something as Jonah did when he was told to go to Nineveh. Sunday afternoon it began to rain, and then it turned to snow. The liveryman would not be likely to be willing to let a rig to go out in such a storm. I put on some heavy shoes, got an umbrella, and started off on a four-mile trip up the railroad track. I was acquainted with just one man at York, and he was a pronounced skeptic and an avowed infidel, and a loud one. Notwithstanding this we were well acquainted, and I called on him. Of course, he was full of talk, and in his talk he said something like this:

"Mr. Root, you Christian people make a great ado about intemperance. You have temperance meetings and organizations. You pass resolutions and appoint committees, but you do not *do a thing.*"

Our good pastor, Rev. A. T. Reed, once said in one of his prayers, "O Lord, we thank thee for our enemies, because they tell us the truth when our friends would not dare to." Now, is there not some truth in the words of my skeptical friend? I said to him pleasantly, "Mr. V., this may be true, but how about you *infidels?* You do not talk, and pass resolutions, but do *you* really do any thing?"

"Yes, sir; we see what needs to be done, and then we go right to work and *do* it."

Of course, the above was pleasantry, and we both laughed; but my walk in the snowstorm had awakened me. I think I must have prayed about every step on the way, and I was ready for business. I rose up and said:

"Mr. V., there is going to be some *real work* done this Sunday night, and a Christian and an infidel are going to do it together. I accept your challenge; and you are going with me to visit this young man who is going to start a saloon to-morrow."

"Oh, no! no! Mr. Root. You will do very much better alone. You are the man, but I have no gift that way. I am sure I would just hinder matters."

"No, you wouldn't, Mr. V.; I have looked out for that. You see you are *acquainted* with this man, and with his wife and children. Now, you are going with me, and you are going to introduce me and tell *why* I came, etc."

As he still protested I told him (of course good-naturedly) that he was going with me, even if I had to pull him over by the coat-collar, *and he went.* I wanted him to rap at the door. But he protested and hung back, so that I did the rapping. When the door was opened I said, "Mr. V., you are acquainted with these people—come up here and introduce me."

I cannot remember his words of introduction; but it was laughable, if the circumstances had not been so grave. We went in and sat down. I reasoned and plead. Among other excuses the father said he would have to educate his children, and he did not know any other way to earn a livelihood. Great heavens, friends! Just think of it—starting a saloon in order to get the means to *educate* a family of children! I appealed to the mother, but she would not talk, more than to say briefly that her husband was going to be very careful to sell liquor only to those where it would do no harm, etc. Like the father and mother I have mentioned first, they deemed my visit an intrusion, and were evidently very anxious to get rid of me. My friend V., although he spoke hardly a word, also felt very much out of his beat. The former transaction I have mentioned had given me faith. I felt that God was on my side, and, consequently, "whom should I fear?" With more faith than on the previous occasion I knelt and prayed that God would direct the father and mother, and I prayed for the children. What do you think happened then? This mother, like the one I have mentioned before, arose with tears streaming down her cheeks. But something happened *more* than a woman's crying. She marched across the room with a queenly step, shook her fist in her husband's face, and said, as nearly as I can remember, "Sir, I hereby give you warning that, the minute you open that saloon, *you* and *I* part. I have objected from first to last. I have been cajoled and hoodwinked into this business against my better conviction. I submit no longer. For the sake of these children, you and I separate the minute you unpack those goods."

I have told you, friends, about the "happy surprises" that a Christian meets in life—yes, unexpected *happy* surprises, and the above was one of them; and I did not feel troubled nor worried when the man jumped up and said, "Mr. Root, are you not a pretty specimen of a Christian to push yourself into a man's house uninvited, and make trouble between him and his wife?"

I cannot recall at this late day what

answer I gave; but I rather think I laughed, even if I had made trouble, although the *real* trouble seemed to have started before I arrived there. He asked me what he should do with the goods he had just bought. I said:

"Ship them back where they came from, and tell them all the circumstances, especially that your wife objects to the business."

Do you think, friends, a divorce followed? Why, bless your heart, no! There was no divorce, neither was there a saloon opened. When we got outdoors my skeptical friend was profuse in his indorsement of *my* way of doing temperance work. Said he, "Amos, that is just it exactly. What you did is just according to my notion. I *believe* in this kind of Christianity," etc.

Now, I confess I do not know whether this man adhered to his profession of *belief in prayer* at that time or not. In thinking it over now it occurs to me I should have taken *him* to the pastor of one of the two churches there and got the minister to look after him as the other pastor looked after Bro. B. And right in here comes that beautiful admonition the dear Savior gave to Peter: "If thou lovest me, feed my sheep." Dear friends, are we who profess to be followers of the Lord Jesus in our several places of work, praying, "Thy kingdom come"? and are you looking after and feeding the *sheep* and the *lambs* that are in such *very great need* of food and encouragement? May the Lord help us.

THE BEEKEEPERS OF OUR LAND; IS IT NOT TRUE THAT THEY ARE, AS A RULE, GODLY MEN?

L. C. Root once said at the opening of a convention in York State, that our industry is an honest and an innocent one, and that we produce something that is of *benefit* to humanity, unlike the occupation of the brewers or distillers. Well, it rejoices my heart to see that the bee *literature* of our land is, as a rule, in the hands of God-fearing men. I was reminded of this by the letter following from one of the directors of the *Beekeepers' Review:*

In regard to the petition, "Lead us not into temptation (sermon in GLEANINGS for July 15) I would like to call your attention to this point: The Spanish version has it, "No dejanos caer en tentacion," "allow us not to fall in temptation" (or into temptation). It seems to me that this simplifies the matter, if this is a correct translation of the original text. What is your opinion?

Franklin, Tenn., July 24. J. M. BUCHANAN.

Many thanks, my good friend, for your additional light on this portion of the Lord's prayer. Well, *I* should like it just as you have quoted it, and I would further add that I would put the word "fall" in italics—"allow us not to *fall* in temptation." That would take in the thought that temptation is good for us, as we have it in that beautiful hymn "Tempted and Tried." Jesus prayed for his disciples, not that they might be taken *out* of the world, but that they might be *delivered* from the evil. Now, then, let temptation come; yes, let it come with all of Satan's ingenuity and subtilty; but let us meanwhile pray, and pray constantly, that the dear Savior will not *allow* us to fall, even if we *are* tempted. Many thanks, my good friend Buchanan, for your timely and wise suggestion. I believe the Holy Spirit prompted you to write it.

Cast thy bread upon the waters, for thou shalt find it after many days.—ECC. 11:1.

The two letters following by some coincidence reached me at almost exactly the same time. Years ago it used to be customary to drive bees with tobacco smoke; but after several of the younger ones had commenced using tobacco in order that they might be up-to-date beekeepers I remonstrated, and finally proclaimed through our little journal, as it was a little one at that time, that I would furnish a bee-smoker, free of charge, postage paid, to every one who would abstain from or give up the use of tobacco provided also that he would permit me to put his name and pledge in print. He also agreed to pay for the smoker should he ever use tobacco again. More than a thousand smokers were given away, and the pledges taken. It took some money to pay for the smokers and postage stamps to mail them; but I felt that this money was "treasure laid up in heaven," and I have good reason to believe it turned out that way. Now read the two letters:

Mr. A. I. Root:—On p. 714, Oct., 1885, I wrote you that I had decided to quit using tobacco, and asked that you send me a smoker, which at that time you were offering as an inducement to beekeepers to quit using tobacco. I received the smoker all right, and from that time until this day have not used tobacco in any form, and, more than that, have raised three boys, none of whom have used it. I have long since quit keeping bees, but have kept my promise to you. If you are still publishing GLEANINGS, I wish you would mail me a copy.

Woodlawn, Ala., Aug. 6. C. W. PLANT.

Some 40 years ago A. I. Root did me a friendly service in inducing me to give up the use of tobacco, which I have never since used.

DR. A. W. THORNTON.

Ferndale, Wash., July 17.

Index to Gleanings in Bee Culture

Volume XLII

In using this index the reader should not fail to note that it is divided into five departments, namely, General, Editorial, A. I. Root's writings, Contributors, and Illustrations. The index of General includes everything except Editorials, Illustrations, and A. I. Root's writings.

GENERAL

A

Absconding, Prevention of 457
Absconding when Treating for Foul Brood.....749
Adulterated Honey in Germany 132
Adulteration, to Detect 133
Advertising Free 328
Advertising Honey as Food on Writing-pad.... 69
Advertising of Bee Business 1000
Advertising, Truthfulness in 126
Africa, Beekeeping in 944
African Bee Tree, Monstrous 374
Alabama, Beekeeping in 979
Alexander Feeder, Large Staples for 647
Alexander Method of Increase 979
Alexander Veil, Improvement 305
Alfalfa, Bumblebees on 661
Alfalfa Blooms Close to Ice.................927
Alfalfa in England 859
Alfalfa in Kansas 516, 840
Alfalfa in Three States 807
Alfalfa Honey Varies in Color 74, 152, 154
Alfalfa Killed during Freeze 245
Alfalfa Prospects in Colorado 89
American Foul Brood, Five-banded Bees Immune 476
American Foul Brood, do not Minimize Danger.137
Ants in Africa 944
Ants, Bother Bees 394
Ant-proof Hive Stands 910
Apalachicola Apiary, E. R. Root on 305
Apiarian Laboratory, Government 856
Apiary, Arrangement of 367, 864
Apiary, Close to Highway 73
Apiary, Proper Location for 71
Apiaries, Scattering of 793
Apicultural Education, Hershiser on 331
Apicultural Education, Shall it be Encouraged? 490
Apple Blossoms and Bees 288
Apple Orchard Redeemed 94
Apples, Feeding of 817
Argentine Republic, Beekeeping in 690
Arizona, Overstocking 434
Arizona Inspection 645
Arrested for Keeping Bees 187
Army Worms in Clover and Cotton 886
Army Worm, Enemy of Clover...............928
Aster and Goldenrod 814
Aster and Goldenrod in Indiana 765
Aster, Byer on 839
Aster Honey, Dr. Miller on 882
Aster Honey Right for Stores 234
Aster, Kentucky, B. N. Gates on............734
Aster, White in Kentucky 465
Attic, Bees in 196
Attic, Starting with Bees in 233
Australia, Wintering in 683
Australia, in Wilds of 910
Australian Bird Pests 934
Australian Hustler 506
Auto Truck for Moving 577

B

Back-lot Apiary Profitable 936
Bags for Moving Hives 434
Bait Combs, Dr. Miller on 573
Bait, Securing Empty Combs for 312
Banking and Beekeeping 459
Bark Shade Boards 857
Bear, Killing of in Bee-yard 772
Bee Business Advertised 1000
Bee Market in Holland 804
Bee pirates in Africa 944
Bees and Honey, History 905
Bees Blown from Combs 640
Bees, Christmas Present to Crown Prince.....461
Bees Clustering Outside of Hive 448, 533
Bees Clustering out, are they Old or Young? 181, 244
Bees Clustered out, are they Wasting Time 709, 840
Bees Cross when Honey-flow Good...........289
Bees Cross Just before End of Honey-flow.....163
Bees, Development of. (See Incubation.)
Bees, do they Anticipate End of Flow?........557
Bees, Doolittle on Best Variety 9
Bees Educate Three Boys 195
Bees Fanning in Mid-winter 163
Bees Get into Wrong Hives 87
Bees, how many Trips in a Day?.....288, 904, 994
Bees Larger in Drone Cells..................498
Bees Moving Honey 368
Bees Outside Wasting Time.........448, 531, 709
Bees Out of Doors Short of Stores............ 99
Bees Reverting to Ancestral Type 267
Bees Support Missionary 628
Bees Visiting Different Flowers 797, 925, 970
Bees, why they Leave Hive to Die..867, 925, 1000
Beehives in Winter, Poem 996
Beekeeping and Farming, Profits from 470
Beekeeping as Hobby 933
Beekeeping, Extensive vs. Intensive 533
Beekeeping for the fun of it 185
Beekeeping, Future in West 621
Beekeeping in Old Country 912
Beekeeping Operations, Cost of..290, 369, 776, 927
Beekeeping Something Better than Money......494
Beekeeping Taught at Guelph 164
Beekeepers Temperance Men 1000
Beekeepers' Union in Germany 133
Beekeepers, shall Beginners be Encouraged? 331, 490
Bee-escape, Double End a Success 557
Bee Journal in New Zealand Proposed 638
Bee-shed, Evolution of 720
Bee-tree, 100 lbs. of honey from 221
Bee-tree Struck by Lightning 996
Bee Tree, when to Cut 244
Bee Tree, Monstrous 374
Bee Tree, were there Million Bees in?....221, 647
Beet Sugar Inferior to Cane 163, 868
Beginner Asset to Beekeeping 643
Beginners, shall they be Encouraged? 331, 490, 492
Bird Pests of Australia 934
Birds Enemies of Bees..................31, 944
Bitterweed Honey 868
Black Colony, Good Record of 152
Blacks Live Longer than Italians 163
Blacks vs. Italians, Doolittle on............. 9
Black, do Bees Dislike?.....................721
Blackbirds Chased by Bees 152
Blight, do Bees Carry?.........299, 365, 641, 974
Blight Destroying Catclaw 707
Blowing Bees from Comb 640
Blow-torch, Gasoline 955
Bluecurl for Honey and Pollen 796
Bluevine, Honey from 814
Boats for Traveling to Outyards 86
Boneset Honey Bitter 750
Borax for Cockroaches 434
Bosses, a Pair of 989
Bottom-bars, Space Under 394, 842, 909
Bottom-board, Concrete 629
Boys' Interest Aroused 901
Box Hive, Transferring from 850
Branded Queens, Experience with 551
Branding Queens a Success 557
Breeder, Chief Points to Consider 270
Breeding Achord on 265
Breeding for Honey instead of Color 274
Breeding from Bees that Make Most Honey 883, 970
Breeding from One Stock, Danger in 266
Breeding, Improvement in Gradual 259
Breeding Queens, Caraway on 263
Breeding Queens, to Select 906
Breeding, Value of Records 261
British Association has over 6000............948
British Columbia, Beekeeping in 51
British Expert 983
Brood Foundation in Sections 393
Brood Raised in Upper Story 836
Brood-chamber not Crowded when Supers are on 244

Brood-chamber, Size of 807, 815
Brood-chambers Clogged with Honey 368, 393, 518, 955
Brood-chambers, Space between.............909
Brood, Effect on Swarming 664
Brood, Removal of to Prevent Swarming 329
Brood-nest, Contraction of 90
Brood, Timely Hints on Spreading of 351
Brood Foundation More Readily Worked than Super 139
Brood-rearing Increased by Stimulative Feeding 885, 925
Brood-rearing in Cellar 206
Brood-rearing, December, Not Wanted 86
Brood-rearing, Early, not Wanted............ 85
Brood-rearing, Late, Doolittle on 49
Brood-rearing September and October 87
Brush Made of Rope 998
Buckwheat Raising, Doolittle on 536
Buckwheat Yield Light in Canada 751
Bulk Comb Honey Helps Sale of Extracted.....231
Bulk Comb Honey Sold in Winter............972
Bulk Comb Honey Sold in Winter........128, 972
Bulk Comb vs. Chunk Honey 867
Bulk Comb Honey, Packed when Ordered......795
Bulletin on European Foul Brood 619
Bumblebee Chased out 911
Bumblebees on Alfalfa 661
Bureau Hive, Todd on 51
Buying vs. Making Supplies 131

C

Cacti as Honey Plants 535
California Convention, Report of 68
California Honey Crop 582
California Prospects for Season 287, 328
Candy, Bees Winter on 687
Candy, Crane's Experience in Making.........971
Candy Fed in Ozarks 234
Candy, Feeding 693
Candy for Queen-cage, Granulated Sugar not Suitable 153
Candy, Hard, Dr. Miller on 45
Candy, Hard, for Winter Stores.............. 27
Candy, Hard, Less Water in 692
Candy, Hard, Trouble in Making.........153, 691
Candy, Melted in Winter 687
Candy, Small's, Tested 692
Candy, Small Method of Making.............141
Candy-making, do not Stir Syrup 1000
Candied Honey in Bulk, Melting 694
Cane Sugar instead of Beet Sugar.......163, 868
Canning Honey, E. S. Miller on 814
Capping Honey, Difference in Bees in 164
Cappings, Feeding Honey in 899
Cappings, Lhommedieu's Plan 447
Capping-melter Here to Stay 557
Capping-melters of Various Forms 70
Car, Arrangement of Framework in..........547
Carbolized Cloths a Success 557
Carbon Bisulphide Injuring Combs 476, 573
Carniolans Swarm in March 817
Cartons, Printed with Net Weight...........661
Cartoonist's View of Beekeeping 184
Castor Beans for Shade 195
Catclaw Destroyed by Blight 707
Cattle Make Bees Cross 327
Caucasian Bees, Wilder on 343
Caucasians, Appearance of 45
Caves and Rocks, Removing Bees from 394
Cell Protector Made of Foundation 717
Cellar Breeding Not Desired 234
Cellar brood-rearing 206
Cellar, E. A. Duax's 457
Cellar, Feeding Syrup in 986
Cellar, when to Set Bees from...........167, 244
Cellar Wintering, Effect on European Foul Brood 671, 971
Cellar Wintering vs. Winter Cases 665
Cellar Wintering, Boardman Plan 678
Cellar Wintering in Quebec 676
Cellar Wintering vs. Wintering Outdoors......670
Cellar Wintering in West 406
Cellar Wintering, Leonard on 727
Cellar Wintering, Holtermann on 807
Cellar with Temperature of 33 Degrees 693
Cellaring Bees 919, 969
Chickens Eating Drones 21, 32
Chilling of Bees 794, 884
Chincapin as Honey-plant 894
Chinese Beekeepers Polite 690
City Apiary, Two Tons Honey from..........176
City Back Lot Profitable 936
City Beekeeping, Chadwick on 165
City Beekeeping, Drawbacks of 193
City Beekeeping, Scholl on 289
City Beekeeping Successful 931
City Beekeeper, Appreciations from 393
City Beekeeper, Foster on 349
City Beekeeper Uses Winter Cases 681
City Beekeepers in Boulder, Colorado 576
City Lot, Bees on 901
City, House Apiary in 181
Clamp Method of Wintering 775
Cleaning Sections at Outyards 838, 882
Clipped Queens, Advantage of 232
Clipped Queens Superseded 909
Clipping Late No Effect on Swarming 244
Clover Damaged by Army Worm 886, 928
Clover Prospects in Ontario 326, 574
Clover, Value for Soil 293
Cockroaches Kept Away by Borax............434
Colleges, why Beekeeping should be Taught in..757
Color of Blossoms, are Bees Attracted to?......455
Color of Honey from Same Plant Varies 48, 74, 152, 154, 245, 433, 575
Color of Honey Affected by Soil 433
Color Sense of Bee, Heberle on 106
Colorado Honey Crop, Foster on.............579
Colorado Prospects 327, 406
Comb Building with Colored Foundation......624
Comb Foundation, how to Make 953
Comb and Extracted in Same Super..........622
Comb Honey and Shaken Swarming 409
Comb Honey between Shallow Extracting Combs 113
Comb Honey, Cost of Producing 776
Comb Honey Cut to Fit Sections 31
Comb Honey in Foul-brood Yard 224
Comb Honey, Packing of 838
Comb Honey Produced in Shallow Frames.....673
Comb-honey Quotations 705
Comb-honey Sandwiches 449
Comb Honey Separators Used Only at the Last. .474
Comb-honey Super, Two Fences on Each Side. .515
Comb Honey, Weight of wax in 325
Comb vs. Extracted 490
Comb, Extracted and Bulk in Same Apiary....938
Combs, A. C. Miller on.............370, 452, 495
Combs, Ancient 858
Combs Built from Starters 434
Combs, Drawn, Value of 330, 492
Combs Freed from Bees by Blowing...........640
Combs, J. E. Crane on 532
Combs Melting Down 354
Combs, Plenty of Needed 328
Combs vs. Foundation 46, 330
Combs, Why Bees Tear Down...............578
Combs with Worker Cells on One Side and Drone on the Other 5
Concrete Hive-bottom 629
Concrete Hive Stands 628, 776, 794, 845
Consolidated Honey Producers of California.... 69
Connecticut Exhibit 846
Connecticut Field-day Report 757
Co-operative Association 752
Co-operation in Canada 164
Cork Chips for Floats in Feeders 661
Cornfield, Bees in Stump 232
Costs in Beekeeping 290, 369,77 6, 927
Cotswold Hills, Beekeeping in 587
Cotton and Clover, Army Worms in..........886
Cotton, Honey from 513
Cottonseed Meal Substitute for Pollen.....234, 693
Cover Combination.........................606
Cover, C. H. Root 760
Cover, Bender's 429
Covers from Pulp-board 575
Court, Bees in 190
Crop Conditions in Colorado. (See Honey Crop.)
Cross Bees Just before End of Honey-flow.....163
Cucumber Greenhouse, Bees in 394
Cucumber Spraying Harmless 809
Cyprus, Queen-rearing on 271

D

Dandelion Honey in May 532
Dandelion, Pollen, Not Nectar from..........492
Dandelions for Nectar and Pollen............447
Danzenbaker Frames Widened 312
Danzenbaker Frames Spaced Wide 392
Dasheen 6½ Feet Tall 860
Demonstration, Remarkable 930, 969
Denmark, Apiary in 986
Dequeening, Unnecessary 56, 126, 236, 292, 366, 476, 514, 537, 805, 998
Detroit, 650 lbs. from Four Colonies 195

Development of Bees (See Incubation).
Digestion Aided by Enzym in Honey 925
Digestion, Effect of Wax on 489
Disease in City and Country 448
Disease, Peculiar 74, 393
Diseases, Nomenclature of 619
Diseased Brood, Careless Mailing of 793
Diseased Colonies, Swarms from 471
Dividing and Requeening 33
Double Colony, Good Yield from 592
Dragon-fly in Florida 648
Dragon-fly of Florida, Not in all Localities.....560
Drink Made of Honey 847
Dripping-pans for Super 886
Drone and Queen, where They Meet 272
Drone Cells, Larger Bees in 498
Drone Cells, New Reason for 842
Drone Comb, Fertile Eggs in 689
Drone Comb, Chadwick on 796
Drone Combs, Top-bars White 373
Drone Rearing, Crane on 46
Drones Eaten by Chickens 21, 32
Drones, Killing of 631
Drones, Manner of Cutting Caps when hatching 797
Drones Never Seen Drinking Water 887
Drones Reared Early 313
Drones, Select, Feeding, to Make Fly..........732
Drouth at Marengo 749
Drowning Bees in Feeders 910
Druggist's Experience 182
Dummies Space between 394, 909
Dutch Bee Market 804

E

Earthenware Hives 627
Eastburn, Josiah, Death of..........518
Educating Three Boys by Keeping Bees..........195
Education, shall it be Encouraged?...331, 490, 492
Education, Apicultural, Hershiser on..........331
Eggs Carried by Bees 133
Eggs Moved by Bees, Miller on 45
Eggs Moved for Queen-rearing..........206, 213
Eggs Stolen from Other Hives..........476
Eggs, Several in Cell 434
Egg Production, J. E. Hand on.......... 10
Electricity for Imbedding Wire 897
Enemies of Bees in Cyprus 383
English Season 512
English Sparrow 539
Entrance, Effect of on Swarming..........467
Entrance for Outdoor Wintering 992
Entrance, Jordan's Device for Controlling 764
Entrance should be Close to Nucleus..........841
Entrances in Winter Case 893
Enzym in Honey 925
Erysipelas, Honey Cure for 74
Escape Made by Sliding Super Forward......518
Escape-board for Super-cover 813
Escape-board Ventilated, Bee Space on Both Sides 114, 717
Escape, Case's Tube 63
Escape, Double End a Success 557
Escapes, Discussion on 309
Eucalyptus in California 304
European Foul Brood and Cellar Wintering 671, 971
European Foul Brood Bulletin 619
European Foul Brood, Cause of..........573
European Foul Brood, Dr. Miller's Plan...661, 731
European Foul Brood, Dr. Miller's Reply to West 951
European Foul Brood, Dr. Miller's Short Cut...888
European Foul Brood, Heavy Honey-flow for it.207
European Foul Brood, how it Spreads 730
European Foul Brood, Immunity from..........954
European Foul Brood in Colorado..........838
European Foul Brood in Ontario 662
European Foul Brood, Italians Not Immune....749
European Foul Brood not Hardship..........205
European Foul Brood or Poisoning..........798, 974
European Foul Brood, Requeening Alone Not Sufficient 836
European Foul Brood, Shaking Plan for......882
European Foul Brood Eliminates Careless Beeman 244
Excluder under Hive to Prevent Swarming....394
Excluder, A. C. Miller on 761
Excluders, Unbound Not Wanted 843
Exhibit at Hartford, Ct. 846
Exhibit at Oklahoma State Fair 848
Exhibit Committee, Chadwick not Member of...245
Exhibit at Vermont Fair 103
Exhibit of Honey at Toronto 62
Exhibit of Honey at Poultry Show 639
Exhibits at Fairs 775
Extract not Proper Term 837
Extracted vs. Comb 490
Extractor, Home-made 174
Extractor Necessary for Comb-honey Production 351
Extractor, Power, vs. Hand.......... 31
Extractor with Friction Drive..........974
Extracting from brood-combs 215
Extracting in January at Marengo 163
Extracting Frames, Foundation Worked Quicker in 622
Extracting Outfit, Anderson's Portable..........808

F

Failures, Reports of, Valuable..........705
Fairs, Exhibit at 775
Fall Management for Future Honey-flows......669
Farm Beekeeping, Plea for 143
Farming and Beekeeping, Profits from..........470
Farmer, should he Keep Bees? 707, 836
Fastening Foundation in Sections 953
Feeder and Hive Bottom 800
Feeder, Alexander, Made of Metal 217
Feeder, Alexander, Supported by Large Staple..647
Feeder, Leonard 726
Feeder, Metal, Coating for 910
Feeder, Smith's Bottom-board 631
Feeding Back Boiled Honey, Danger..........975
Feeding, Bees and Hogs 328, 751
Feeding for Winter, Crane on 883
Feeding Honey and Cappings 899
Feeding in spring, Chadwick on 328
Feeding in Spring 33
Feeding in Spring, Foster on 577
Feeding in Spring, Ideas on Compared 147
Feeding in Spring Valuable to Prevent Starving Only 145
Feeding Loaf Sugar 849
Feeding, No Danger of Robbing 839
Feeding Quart of Syrup Draws Foundation One-half 794, 925, 926, 927
Feeding, Stimulative, Chadwick on 884
Feeding, Stimulative, Dervishian on..........911
Feeding, Stimulative, Doolittle on 578
Feeding, Stimulative, Dr. Miller on 837
Feeding, Stimulative, for Brood-rearing ...885, 925
Feeding, Stimulative in Fall.....131, 286, 728, 842
Feeding Syrup before Fall Honey-flow 691
Feeding Sugar Syrup, Hand on 671
Feeding Syrup in Cold Weather 986
Feeding Thin Honey in Fall 154
Feeding, to Make Select Drones Fly..........732
Feeding when Robbing is Bad 745, 836
Fence of Wire for Out-apiary 327
Fence, Necessity of 892
Fences, Two on Each Side of Super..........515
Fences for Winter, Crane on 883
Field Meeting, Canadian 492
Field Meeting of New Jersey Beekeepers 63
Field Day in New Zealand 635
Field-day Demonstration, Texas 620
Field-day Report, Oct. 1st issue.
Fighting among Bees of Same Colony.......... 87
Finding Queen 63
Fires, Guarding against 972
Floats in Feeders, Cork Chips for..........661
Floods in Texas Cause Heavy Losses..........47, 449
Flooded Bees 152
Florida Enthusiast 33
Florida Apiary, E. R. Root on 305
Flour and Sugar for Pollen 434
Flowers, Bees Visiting Different Kinds 797, 925, 970
Folding Sections, Devitt's Method 312
Food Analysis, Robinson on 148
Forest Fires Not so Frequent 796
Forest Fires in California 970
Formic Acid, Origin of in Honey 689
Foul Brood, Absconding, when Treating 749
Foul-brood Bulletin 619
Foul Brood, can it be Eradicated?..........706
Foul Brood, Careful Mailing of Sample..........793
Foul Brood, Drastic Measures Needed 333
Foul Brood, Five-banded Bees Immune 476
Foul Brood, Helps and Hindrances in Dealing with 144
Foul Brood in California, Both Types Less Prevalent 970
Foul Brood in Kentucky 518
Foul-brood Inspection, Problems of 532
Foul-brood Law, Texas, Provides No Money...886
Foul Brood or Poisoning 798
Foul Brood, Origin of 910
Foul Brood, Preventing Absconding 457
Foul Brood, Prevention Better than Cure......762

Foul Brood, Samples to Dr. Phillips. .793, 836, 971
Foul Brood Spread by Habitual Robbers......518
Foul Brood Spread by Second-hand Cans.......101
Foul Brood, Ten Good Don'ts 763
Foul-brood Terminology 706, 736
Foul Brood, Tin Box and Frank from Dr. Phillips for 836
Foul Brood Treatment Simplified 802
Foul Brood, Variation of McEvoy Plan........205
Foul-broody Honey, Sterilizing 975
Foundation, Bottomstarters 327, 447, 489
Foundation Brood vs. Super 139
Foundation, Brood, Experience with 393
Foundation, Buying vs. Making 912
Foundation, Colored, Experiments with........624
Foundation Drawn when Bees Work on Honeydew 498, 708
Foundation Half Drawn by Quart of Syrup.... ....794, 925, 926, 927
Foundation in Brood Frames, Doolittle on...... 49
Foundation, Fastening, A. C. Miller on........497
Foundation, Fastening in Frames 460
Foundation, Fastening, Heberle on............810
Foundation, Fastening in Sections 953
Foundation, Fastening in Shallow Frames 534
Foundation-fastener, Woodman 55
Foundation, Grades of Compared 139, 285
Foundation Half Drawn by Quart of Syrup...
Foundation, Imbedding Heated Wires in 495, 573, 897
Foundation Inferior to Drawn Combs 330
Foundation, Location of 5
Foundation, Melted Wax to Strengthen 46
Foundation, Sagging of 475
Foundation Splints, Home-made 941
Foundation, Splints for Supporting 941, 969
Foundation, Starters vs. Full Sheets 327
Foundation Supported by Five Splints 285
Foundation, Thick, Injures Sale of Comb Honey 691
Foundation Worked Quicker in Extracting Fr's. 622
Foundation vs. Combs 46
Foundation Wired Vertically Makes Wavy Combs 705
Frames, Danzenbaker, Spaced Wide..........392
Frames, Nailing and Wiring 452
Freight Rates in New South Wales...........956
Friction-drive Honey-extractor 974
Friendliness of Beemen 642
Fruit and Bees, Byer on 86
Fruit and Bees in England 112
Fruit Bloom Heavy 434
Fruit Blossoms, Bees Primarily Kept for......111
Fruit Crop Hurt by Cold Weather during Blossoming 95
Fruit-grower also Beekeeper 110
Fruit-grower, Beekeeper's Relation to 55
Fruit Journals Recognizing Bees 405
Fruit Men Buying More Bees................102
Fruit Men Value Bee 104
Fruit Orchard, Number of Colonies Needed per Acre 114
Fruit Trees, do Bees Spread Blight?......299, 365
"Full Hives," Poem 908
Fumigating with Carbon Bisulphide Injuring Combs 476, 573

G

Gasoline Blow-torch 955
Geese Keep Grass down 1000
Georgia, Beekeeping in..................220, 342
German Beekeepers' Meeting 538
Germany, Adulterated Honey in 132
Germany, Notes 460, 689, 810
Germany, Two Bad Honey Years 969
Glass-front Shipping-cases 956
Gold in the Bee Colony 377
Goldens, Few True to Name 274
Goldens Show up Well 328
Goldens vs. Leather-colored 33
Goldenrod and Aster...................765, 814
Government Apiarian Laboratory 856
Grading Comb Honey for Cartons............661
Grafting Done by Nine-year-old Girl..........938
Grapes, Bees Work on 647
Grape bloom, pollen from 232
Grapes, Twenty Years among 472
Grass in Apiary Dangerous 973
Grass Kept down by Geese 1000
Grass Kept Down by Sheep 719
Grass Kept down by Paper..............312, 842
Greasy Waste for Smoke Fuel 557
Granulated and Bulk Comb Honey...........128
Granulated Honey in Bulk, Melting...........694
Granulated Honey in Leaky Cans 448
Granulated Honey, Retailing of 71
Granulated Honey, to Liquefy 58
Granulation, Science of 433
Grocermen Watch Demonstration 759

H

Haileybury, Ontario, for Honey 574
Hand Convertible Hive 997
Handling Bees, Remarkable Demonstration.930, 969
Harvey, M. W., of Colorado 253
Hat, Bees on 943
Help in Bee-yard, J. L. Byer 750
Hens That Don't Lay, to Get Rid of.......... 23
Higgins vs. Van Wye 190
History of Bees and Honey 905
Hive Bottoms with Deep Space.......394, 842, 909
Hive Bottom and Feeder 800
Hive, Doolittle on Size of 90
Hive, Eight-frame, on Sectional-hive Plan.....705
Hive, Hand's Convertible 997
Hive, Larger Standard Wanted 864
Hive, Let Alone and Long Idea 390
Hive Methods, New Principles 906
Hive Painted, Used 32 Years.................448
Hive, Size and Shape of.................... ...... 90, 531, 623, 815, 851, 860, 862, 864, 997
Hive Stands, Concrete..........628, 776, 794, 845
Hive Tool, A. C. Miller's 531
Hive Used Thirty-four Years 312
Hives, Ancient 716
Hives, Building at Home................896, 970
Hives in Long Rows a Mistake 367
Hives in Pairs 367, 447
Hives, Location of in Apiary 863
Hives Made by L. L. Langstroth 858
Hives of Earthenware 627
Hives, Old, Retain Value 26
Hives, should Beekeeper Make His Own?.....578
Hives, Standardization of 128
Hives, what to Use 954
Hives, what is Standard 820
Hive-covers, paper for 837
Hiving Swarm on Sealed Brood 619
Holland Bee Market 804
Holtermann's Winter-cases..............665, 892
Holyland, Beekeeping in 414
Honey and History 905
Honey-bee, Ode to 72
Honey-board, A. C. Miller on 761
Honey-boards, Unbound, Not Wanted 843
Honey-bound Brood-nest 368, 393, 518, 955
Honey-cans, Holes in 448
Honey, Color (See Color).
Honey Compared to Other Food 148
Honey Crop, Colorado, Further Report on..... ....663, 732, 751
Honey Crop, Holtermann on 688
Honey Crop from Ontario, Further Report.....662
Honey Crop Creates Panic 991
Honey Crop in Colorado, Foster on 579
Honey Crop, Dr. Miller's Questions on........311
Honey Crop, Dr. Miller 749
Honey Crop, Remarkable, from 800 Colonies....505
Honey, Dark, What to Do with 367
Honey, Different Kinds in One Cell.......... .... 127, 205, 718, 797, 837
Honey Exhibit at Vermont Fair 103
Honey, Fisbeck's Plan for Increasing Yield of. .553
Honey for Different People 491, 573, 575, 661
Honey from Same Plant Varies.............. ....48, 74, 152, 154, 234, 245, 433, 575
Honey from Hive to Honey-house 865
Honey, Haphazard Selling 620
"Honey Harvest," Poem 868
Honey-house, Interior Arrangement of 866
Honey in Warm Drinks 969
Honey Market, "bearing" vs. "bulling"......450
Honey Market, Effect of War on 795
Honey Market, Foster on 838
Honey Market, Local, in Colorado 576
Honey Marketing, Organization in 556
Honey Moved by Bees 368
Honey Off-grade, Folly of Selling 208
Honey, per Capita Consumption 3
Honey Prices, to Prevent Variation in........
Honey Prospect at Haileybury, Ontario .....
Honey Production in Iowa ....
Honey Prospects in Canada ....
Honey Prospects in Marengo ....
Honey, Serving at Table ....
Honey, Supply and Demand ......
Honey, Unripe ....
Honey Used by Jews ....

Honey vs. Sugar....449, 681, 749, 793
Hopper, Bert W. 518
Horticulture and Bees 504
Hotels Advertising for Honey....125, 286
House Apiary in City 181
House Apiary, Crane on 366
House Apiaries, Strittmatter on 383
House, Transferring Bees from 232
"How doth the Little Busy Bees," Poem 718
Hybrids vs. Pure Italians 811
Hydrometer for Honey 555

I

Idaho Honey Crop 600
Idaho, 240-colony Apiary 301
Imbedding, Heated Wires 495, 573
Imbedding Wires, Heberle on 810
Imbedding Wires Loose....605
Imbedding Wires on Alternate Sides of Foundation 647
Immunity from Disease 730
Imperial Valley Quarantine 7, 154
Increase, Alexander Method 979
Increase and Swarm Control 213, 313
Increase and Swarming, "Outlaw" on....541
Increase by Nucleus Plan 353
Increase, Dunton's Way 631
Increase from One Colony to Three Apiaries....194
Increase Made by Combs Taken from Strongest Colony 227
Increase, Modification of Somerford Plan....735
Increase Not Wanted 909
Increase, Questions on....606
Increasing from Two Colonies to Eight....694
Incubator as Queen-hatcher 771
Incubation, Greiner on 589
Incubation, Crane on 366
Incubation of Queens 125, 705, 841
Incubation of Workers....125, 335, ~~573, 622~~
Indiana Notes 765
Inspection, Crane on 708
Inspection in Arizona 645
Inspector's Opportunity 843
Inspection Work in Tennessee 225
Inspectors, Good Advice for 752
Inspecting, Helps and Hindrances 144
Inspection, Problems of 532
Inspection, Prosser on Requirements of 406
Insurance out of the Question for Bees....956
Introducing by Water Method 685
Introducing by Throwing Queen in Colony 992
Introducing in Cage on Alighting-board 818
Introducing, Cage-plan Safer 752
Introducing, Doolittle on 973
Introducing Dual Plan 793
Introducing, Emotional Method 549
Introducing, Further Report on Smoke Plan....774
Introducing Hungry Queens 113
Introducing, Origin of Cage Method....818
Introducing Queens Late 533
Introducing Smoke Plan, Trouble with....735
Introducing, Smoke Method, A. C. Miller on........510, 537, 977
Introducing, Smoke Method Old..113, 152, 310, 388
Introducing, Smoke Method Successful 776
Introducing, Smoke Method, Byer on 750
Introducing, Smoke Method, Hopkins on....912
Introducing, Smoke Method, Cozins on....842
Introducing, Smoke Plan with Tobacco 557
Introducing, Smoke Plan, Burton on 814
Introducing, Smoke Plan, Crane on 709
Introducing, Smoke Plan Unsuccessful 868
Introducing, Smoke Plan, Stuart on....560
Introducing, Smoke Plan with Tobacco....557
Introduction of Queen Causing Death of Workers 325
Introduction, J. E. Hand on 949
Introducing Virgin Queens 771
Iowa Beekeepers at McGregor 550
Iowa Convention Report 100, 754
Iowa Honey Production 431
Iowa Location, Pellett on 557
Iron in Honey 163, 366, 749
Isle of Wight Disease, More about.... 57
Isle-of-Wight Disease 539
Italians for Comb Honey 244
Italians, Lack of Standard 251, 258
Italians not as Long-lived as Blacks 163
Italians Not Immune to Foul Brood....749
Italians vs. Pure Hybrids 811
Italians vs. Blacks, Doolittle on 9
Italians vs. Blacks for Capping Honey.... 85

J

Jamaica Earthquake 693
Jamaica, Good Prospects in 113
Jamaica Honey Forty Cents a Gallon....518
Japanese Apiary 335
Jews, Great Honey Users 405
Jumbo Hive for City 183

K

Kansas, Good Record from 196
Kentucky Convention Report 109
Kentucky, Foul Brood in 518
Kentucky State Fair 387
Killing Bees with Kerosene 663
King-birds Eating Bees and Queens 31

L

Labor, Eight Hours a Day 796
Labels, how to Paste 733, 802
Label, Pasting Edge of 233
Labor, Profitable and Unprofitable.... 72
Larvæ of Workers, are they Fed Royal Jelly?...817
Law, Net-weight. See Net-weight Law.
Laying Worker Caught in Act 867
Laying Workers, Cause of 85
Laying Worker Colony, Queen Introduced to...605
Laying Workers, to Detect 836
Lebkuchen and Dr. Miller 85
Lice, Ashes to Exterminate.... 24
Lice, Blue Ointment to Kill 32
Lightning Strikes Bee-tree 996
Linseed Oil, Doolittle on 49
Liquefying, A. C. Miller on....131
Liquefying Honey in Large Tanks 694
Liquefying, T. P. Robinson on.... 58
Liquefying Honey in Leaky Cans 448
Loaf Sugar for Wintering Bees....67, 849
Locality, Don't Condemn 311
Locality Self Condemned 311
Locations, Difference in 493, 686
London, Bees in 192
London, Ontario Convention 308
Long Idea Hive 390
Longevity, Dr. Miller on 205
Louisiana, Getting Stuck with Load of Bees....425

M

Mail Carrier and Beekeeper 803, 942
Mailing-cage, Barstow's Plan for Water....517
Mailing Cage, Sponge to Hold Water 819
Mailing Diseased Brood, Careless 793
Maine, Fine Honey Crop in 820
Maple, Doolittle on 209
Market for Bees in Holland 804
Market Quotations, Foster on 8
Market Stimulated by City Beekeepers....165, 193
Marketing Bulk Comb Honey in Winter....128, 972
Marketing Honey, Foster on 576
Marketing of Honey Haphazard 620
Marking Hives 711, 989
Marvelous Record in Catching Swarms....820
Mating Nuclei with Three Combs 154
Mating Virgin from Upper Story 796
Medina Field-day Meeting 758
Meeting in July in Canada 662
Meeting Outdoors 662
Melted Wax for Fastening Foundation 534
Mendelism, Bullamore on 552
Mice Destroy Colonies 692
Michigan Convention Report 54
Michigan Honey Crop 584
Migratory Beekeeping, does it Pay? 706
Migratory Beekeeping in Europe 925
Migratory Beekeeping in New York 423
Milkweed, Honey from 593
Milkweed in Swamp 662, 794
Minnesota Beekeepers Organize 752
Minnesota, No Honey in 904
Minnesota, Wintering in 725
Missionary Makes Living with Bees 628
Mixing of Bees among Different Hives 87
Moods of Bees Vary 813
Moore, J. P., of Kentucky 266
Motor Truck in New York 432
Motor Truck in New Zealand 413
Motorcycle Runs Power Saw 899
Movies, Bees in 689
Moving Bees and Getting Stuck 425
Moving Bees, Arrangement of Car....547
Moving Bees, Disastrous Experience 420
Moving Bees in New Zealand 413
Moving Bees in Car Lots in Winter 999
Moving Bees to Basswood 133
Moving by Auto Truck 577

Moving by Enclosing Hives in Bags..........434
Moving from Ohio to Florida............138, 410
Moving in Mid-winter...................... 73
Moving on Loose-hanging Frames...........427
Moving, Shutting Out Field Bees before......426
Moving South..............................311
Moving, Trials and Triumphs...............428
Moving with Entrances Open...............163
Mustard Practically not Grown in United States 149
Mysterious Trouble among Bees............942

N

National Convention in Denver.............838
National Secretary, letter from.............233
National, Wisconsin Beekeepers Lack Confidence in...............................226
Nectar, what if all were Saved?.............946
Net-weight Law, Crane on............708, 794
Net-weight Law, Chadwick on...............884
Net-weight Laws, National and State.........385
Net-weight Law Not for Local Sales..........648
Net-weight Law, Scholl on..................795
Net-weight Law and Light-weight Sections.....626
Net-weight on Cartons or Sections............661
New Jersey Convention.....................212
New Jersey Field-day Report...............759
New Jersey Field Meeting.................. 63
New Jersey Specialist......................211
New South Wales, Freight Rates in..........956
New York Convention Report............69, 472
New York Honey Crop.....................582
New York, Not Massachusetts...............912
New Zealand Bee Journal...................638
New Zealand Field Day....................635
Newspapers to Keep Down Grass.............312
North Carolina, Woman Keeps Bees in........228
Norway, Further Glimpse of Mountain Life....724
Novice in Bee Camp.......................543
Nuclei Wintered Outdoors..................674
Numbers for Hive, Chadwick................533
Numbers Made of Paper....................956
Numbering Hives..........................711
Numbering Hives, Beuhne on............... 66
Nurse Bees Remaining Nurses...............244

O

Observation Stations.................461, 811
Octagon Hives............................350
Ode to Honey-bee......................... 72
Odor, Imparted by Queen...................975
Oklahoma Exhibit.........................848
Oklahoma Notes...........................381
Old Bees, why they Leave the Hive to Die.... ....867, 925, 1000
Ontario Convention.......................308
Ontario Honey Crop.......................581
Ontario Honey Exhibit.................... 62
Oregon Honey Crop.......................600
Oregon Sources of Honey..................196
Organizing in Marketing Honey.............556
Organization and Selling..................663
Organization, Co-operative.................752
Outdoor Colony, Capture of................984
Outlaw, Story of....................177, 222
Outyards, Boats for Traveling to........... 86
Outyards, where to Locate.................622
Overproduction, Danger...................408
Overstocking, Dr. Miller on................646
Overstocking in Arizona...................434

P

Packing Comb Honey......................838
Packing for Winter Case...................893
Packing Honey, Plea for Uniformity.........707
Paint Blistered on Hive...............606, 688
Paint for Hives, Sand on..................531
Paint for Sterilizing Hives.................718
Paint Good for Hives but Not for Bees....... 85
Paint, Why it Came Off...................476
Painted Hives Not Bad for Georgia Bees......464
Painted Hives Used 32 Years...............448
Painting, E. J. Ladd on....................952
Painting, Figures on......................533
Painting, is it for Looks?..................311
Painting, Miller on.....................5, 125
Painting Pays, Byer on....................246
Painting Preserves Hives.................. 26
Painting Top-bars white...................373
Painting, value of.........................289
Palestine, Beekeeping in...................414
Panama Pacific Exhibition.................647
Paper for Hive-cover......................837
Paper Hive-numbers.......................956
Paper to Keep Down Grass.................842
Paper Wrapped on Row of Hives............941
Paralysis and its Vagaries.................995
Paralysis, Medicinal Treatment for..........647
Paralysis vs. Starvation...................475
Parcel Post, Comb Honey Sent by...........693
Parcel Post for Shipping Honey......206, 286, 560
Parcel Post in Canada.....................164
Pasting Labels.......................733, 802
Pasturage in City.........................303
Peas, Honey from........................955
"Peace of a Dream," Poem.................724
Peach Trees nearest Bees Produce Best Crop... 98
Pear Blight, do Bees Spread?....299, 365, 641, 974
Peddling Honey, Doolittle on...............130
Pennsylvania Convention Report............382
Phin, John, Death of...................... 45
Pigeon-growing and Beekeeping.............998
Pine, Limber Not Lumber..................328
Planing-mill bee supplies..................166
Plum-trees for Shade......................956
Poison of Stings as Medicine...............596
Poisoning from Beesting..................491
Poisoning of Bees under Trees that are Sprayed 641
Poisoning or European Foul Brood.......798, 974
Poisoning, Severe Case of..................768
Pollen, Abundance of in California.........245
Pollen, Artificial Feeding of................606
Pollen, artificial, Dr. Miller on.............365
Pollen, Artificial, Small on................141
Pollen, Artificial, Value of.................274
Pollen, Chemical Analysis Wanted...........448
Pollen, Chemical Composition of............708
Pollen, Cottonseed Meal Substitute for....234, 693
Pollen, Crushed Oil Cake Substitute for.......148
Pollen, Different Kinds in One Cell......718, 827
Pollen, Early Sources in Canada............408
Pollen, Flour and Sugar Substitute for.......434
Pollen, Flour Substitute for...........166, 218
Pollen from Grape Bloom..................232
Pollen from maple........................209
Pollen from Poppy...................597, 598
Pollen from sunflowers....................533
Pollen Gathered by Queenless Colonies........ 74
Pollen, Flour Substitute for............166, 218
Pollen, Sawdust as Substitute for.154, 233, 313, 687
Pollinating, Bees Sold for..................765
Pollenizing fruit trees, value of bees.........229
Pollinators, Bees, Value for................755
Poppy as Pollen-plant................597, 598
Porch, 200 lbs. of Honey on................180
Porto Rico Association....................770
Potato-growing...........................287
Poultry and Bees, Hershiser on............. 29
Poultry and Bees, Cary on................. 14
Poultry and Bees, Woman's Experience....... 25
Poultry and Bees at Texas Dry-farming Congress 707
Poultry as Side Line with Beekeeping........ 15
Poultry, Bartlett on....................... 17
Poultry, Bees, and Gardening.............. 20
Poultry, Gifford on....................... 18
Poultry-house, Bees in.................... 32
Poultry-house, Upson..................... 25
Poultry Journals Criticised................. 32
Poultry, no money in.....................206
Poultry Plant in Back-yard................. 22
Poultry Raising in Town Does Not Pay....... 8
Poultry-raiser Successful in California.......926
Poultry Show, Exhibit of Honey at...........639
Power Extractor, Hutchinson...............500
Power Extractors vs. Hand................. 31
Practical Farmer, Extract on Spraying....... 93
Price of Honey, Supply and Demand Controls..373
Prices of Honey, Chadwick on..............450
Prices, Temporary Slump in................326
Prices to Boost...........................354
Professional Folks, Bees for................191
Propolis for Dressing Wounds..............868
Propolis Prevented by Tallow..............842
Propolis, Various Uses of..................858
Pulp-board Hive-covers...................575
Puget Sound Beekeeping...................644

Q

Queen Introducing. (See Introducing.)
Quarantine in Imperial Valley............7, 154
Quarantine Law in Iowa...................101
Queen Accepted when Hungry...............113
Queen and Drone, where They Meet.........272
Queen-breeding, Achord on................265
Queen-breeder Moved to California..........575
Queen-breeding Yard, Mott's...............384

Queen-cage Candy, Granulated Sugar not Suitable for 153
Queen-cells, Destroyed to Stop Swarming 33, 311, 368, 531
Queen-cell Production, Horizontal 516
Queen-cell Patched with Foundation 717
Queen-cells, Destroying to Prevent Swarming ..311
Queen-cells Grafted by Nine-year-old Girl 938
Queen-cells in Upper Story 394
Queen Eggs Do Not Hatch 31
Queen-excluder, A. C. Miller on 761
Queen-excluders, Beuhne on 66
Queen Going to Other Hive 518
Queen, High Development Due to Better Food 661, 971
Queen Imparts Colony Odor 975
Queen Introduced without Dequeening. (See Requeening.)
Queen Introduction for European, Not American Foul Brood 622
Queen Laying in Combs Crosswise of Brood-combs 999
Queen Larva, Difference in Feeding 661
Queen Laying Several Eggs in Cell 434
Queen Lays Six Thousand Eggs 475
Queen, Miles on Choosing of 249
Queen Not Always to Blame 340
Queen, Prolific, are Bees from Hardy? 273
Queen Raised by Eggs Stolen from Other Hive ..476
Queen Reared below under Excluder 573
Queen Reared in Upper Story Failure 775
Queen-rearing Discussion 309
Queen-rearing, Doolitle's history 245
Queen-rearing, Dr. Miller on 969
Queen-rearing, Holtermann on 254
Queen-rearing, Losses in 290
Queen-rearing, Questions on 33
Queen-rearing, Spicer's Method 760
Queen-rearing on Isle of Cyprus 271
Queen Returned to Wrong Hive 163
Queen, Sifting Bees through Excluder to Find .. 64
Queen Stung by Worker 85
Queen Tested Out by Another Colony 491
Queen, to Keep Out of Upper Story 819
Queens, Absolute Uniformity Not Possible 256
Queens Branded 551
Queens, Caraway on 263
Queens, Clipped, Advantage of 232
Queens Confined Below 620
Queens, Early Rearing of 387, 405
Queens, Exchange of, between Different Colonies 66
Queens, for Breeding, to Select 906
Queens, 400 from One Colony 132.268
Queens Given Room by Extracting 215
Queens Hatching in Incubator 771
Queens, how Long to Keep 882, 884
Queens, Incubation, Doolittle on 841
Queens in Upper Story a Failure 796, 925
Queens Introduced by Water Method 685
Queens Introduced Late 533
Queens, Judging of, by Colony 708
Queens Not over Two Years 466
Queens, Quality from Supersedure Cells 556
Queens Reared Out of Season 491
Queens Reared over Colony with laying queens ..285
Queens, Replacing when Two Years Old 619
Queens Shipped with Combless Bees 33
Queens, Striking Variations in 260
Queens, Three-year-old, Good 705
Queens to New Zealand, Death of 517
Queens, Two-year-old, Dr. Miller on 793
Queens, Young, A. C. Miller on 843
Queens, Young, Advantage for Next Season 669
Queenless Colonies Gathering Pollen 74
Quilts Not Used by Dr. Miller 925

R

Races of Bees Exhibited 846
Rain Came Too Late 600
Rain in California 127, 207, 245, 926
Rain-barrel for Apiary 909
Reading up on Bees during Winter 929
Rebellion, Poem 680
Record Board, J. E. Crane's 85, 366
Record Keeping, Flora McIntyre on 711
Record-keeping, Simmon on 989
Record System, New 533
Record, Value of in Breeding 261
Records for Apiary, Dr. Miller on 85
Red-clover Honey Crop 125
Red-clover Italians 274
Red Clover, Conditions when it will Yield 559
Red Clover, Honey from 508
Red Clover, Second Crop, Bees Rarely Work ...285
Red Clover, Second Crop, Bees Work on 286
Red Clover, Second Crop, Bees Working on 125, 246
Red Clover with Short Corolla 905
Redeeming Neglected Orchard 94
Rent, to Pay for Location 795
Rent, Dr. Miller on 836
Repp, Charlie, apple grower 347
Requeening, A. C. Miller on 50
Requeening at Swarming Time 386, 405
Requeening, Best Time for 73, 386
Requeening by Putting Old Queen above Excluder 393
Requeening, Fall the Best Time for 131
Requeening not Necessary 292
Requeening without Dequeening 56, 126, 236, 292, 366, 476, 514, 537, 805, 998
Ripening of Honey 710
Ripening, Natural vs. Artificial 594
Robber Cloth, Cheney 63
Robber Trap, Modifying Escape for 819
Robbers Spread Foul Brood 518
Robbers, Tin Spout for Trapping 736
Robbers, Trapping Out Not Recommended 817
Robbers, Trapping of 706
Robbing, Chadwick on 127
Robbing, Creosote Dip to Stop 353
Robbing, Dr. Bruennich on 377
Robbing, Feeding during 745, 836
Robbing, No Necessity for in Feeding 839
Robbing, Shafer's Device to Stop 998
Robbing, Stopping of 648
Robbing, Wholesale 633
Rocks and Caves, Removing Bees from 394
Roof, Beekeeping on 168, 172
Roselle Jelly 47
Roses, Honey from 539
Roosts for Chickens, Removable 32
Royal Jelly, Amount Fed to Queen Larva 661
Royal Jelly, is it Fed to Worker Larvæ? 817
Rubber Stamps vs. Printed Cartons 661
Rye flour substitute for pollen 166

S

Sage Killed by Freeze 234
Sagging of Foundation Prevented by Melted Wax 46
San Bernardino Mountains, Bees in 134
Sandwiches, Comb-honey 449
Saw Run by Motorcycle 899
Sawdust, Bees Working on 154, 233, 313, 687
Sawdust for Pollen 687
Scale Hives, Record of 598
Section, double length, cut in two 214
Section Holding Full Pound 661
Section-holder Improvement 151
Section of Honey, Cost of 776, 927
Sections Cleaned at Outyards 838, 882
Sections, 4 x 5, Used in Square Section Super ..153
Sections of Snow-white Wood 887
Sections, Unfinished, what to do with 734
"Secret of Song of Bee," Poem 776
Self Preservation in Bees 690
Selling and Organization 663
Selling Bulk Comb Honey in Winter 972
Selling Honey by Peddling 130
Selling Honey as Oranges are Sold 88
Selling Honey, Miles on 946
Selling of Honey Haphazard 620
Separators Used Only at the Last 474
Shade Bad if Too Dense 286
Shade Boards of Bark 857
Shade, Effect of on Swarming 468
Shade for Bees 71
Shade from Castor Beans 195
Shaken-swarm Plan, Questions on 393, 394
Shaken-swarm Plan without Increase 909
Shaken Swarming and Comb Honey 409
Shaking Bees from Combs 988
Shaking Energy into Bees 311
Shallow Frames, Putting Foundation in 534
Shallow Frames for Producing Comb Honey 673
Shares, Working Bees on 468
Sheep for Keeping Down Grass 719
Shipping Bees by Carload 354
Shipping Bees in Car Lots in Cold Weather 999
Shipping Comb Honey by Express 956
Shipping Honey by Parcel Post 560
Shooting Down Swarms 469
Sifting to Find Queen 64, 516
Skunks in California 970
Smoke Plan of Introducing. (See Introducing.)
Smoke, when to Use 517
Smoker, Burning Creosote Out 312
Smoker, Self Extinguishing 509

Smokers, Heberle on 462
Smoking Bees from Supers 836
Snow and Ice, Hives Buried under.......672
Snow and its Effect on Entrances....... 73
Snow does no Harm in Winter.......408, 708
Snowfall in Colorado 89
Snow-white Sections 887
Snowberry in Iowa 895
Snowstorms, Unusual 991
Snyder, Aaron, Death of 353
Soil, Effect on Color of Honey.......433
Soil Fertility and Honey Production 293
Soil Improvement Association 205
Solar Extractor, Heat of 153
South Africa, Beekeeping in 944
South Dakota Convention Report 150
Spacing Device, Simple 912
Spain, Modern Methods in 310
Special Section Super Improvement 151
Splints, Dr. Miller's Method 969
Splints for Supporting Foundation 285
Splints, Home-made 941
Spontaneous Combustion, Danger of 34
Spraying, Both Sides of 247
Spraying, Exact Time for 125
Spraying, Extracts from Practical Farmer....... 93
Spraying Fruit Trees, Address 473
Spraying, Ignorant, Kills Bees 433
Spraying, J. A. Green on 974
Spraying, New Danger 641
Spraying, Wholesale, Killing Bees 91
Spraying, Woodworth on 987
Spray-poisoning or Foul Brood 798
Spring Dwindling, to Check 394
Spring Dwindling in Vermont 448
Spring Feeding Advisable only to Prevent Starving 145
Spring Feeding, Chadwick on 328
Spring Feeding, Ideas on Compared 147
Spring, Vision of, Poem 153
Squash Blossom with Seven Dead Bees.......794
Squash Honey 646
Standardization of Hives 128
Starters in Sections, Shape of.......954
Starters, Top and Bottom 327, 447
Starvation, Not Paralysis 475
Starved, Fourteen Thousand Colonies 539
Stealing Honey, Foster's Experience 633
Steam Honey-knife Here to Stay 557
Sterilizing Foul-broody Honey 975
Stimulative Feeding for Brood-rearing 885, 925
Sting Poisoning 709
Stings, Cure for Alcoholism 999
Stings for Medicine 596
Stings, Hundred at Once 206
Stings, Not Lost when Stinging Other Bees.......451
Stinging, Severe Case of 768
Stock, Taking Inventory of 972
Stores for Winter, Amount Needed.......709, 753
Stores in Hives, Holtermann on.......733
Straining Honey, Importance of 814
Stump, Bees in 232
Sugar, Amount to Make a Colony.......794
Sugar, Amount to Build up Weak Colonies.......606
Sugar, Beet, Opposed 163
Sugar vs. Dark Honey for Stores 751
Sugar, Deficiency in Salt 205
Sugar Feeding, Miller on 45
Sugar, High Price of 752
Sugar, Loaf, Feeding 67, 849
Sugar, Price of Going up 705
Sugar Syrup, Amount for Winter.......325
Sugar Syrup, Consistency of 971
Sugar Syrup Fed in Cold Weather.......986
Sugar-syrup Feeding, Hand on 671
Sugar-syrup Feeding, Holtermann on 807
Sugar Syrup, Honey in 708
Sugar Syrup, Quart Draws Foundation One-half 794, 925, 926, 927
Sugar Syrup vs. Honey 449, 681, 749, 793
Sugar, Ton and a Half at War Prices.......816
Sugar vs. Alcohol 883
Sugar, what Kind to Use 394
Sunflowers, Pollen from 533
Super Covers, Metal-bound Warp 813
Super Drpping-pan 886
Super Made of Winter Case 818
Supers, Bees Entering 330
Super Dripping-pan 886
Supers, Fitting to Odd-sized Hives 56
Supers, Improvement in 554
Supers, when to Put on 70
Superseding, Time of 405, 622, 706, 836
Supersedure of Clipped Queens 909
Supplies Made at Home 166, 718
Surplus, Fisbeck's Plan for Increasing 553
Surplus Increased by Restricting Swarm 451
Swamp Bee Pasture, G. W. Haines on.......812
Swamp Milkweed, Crane on 794
Swamp Milkweed 662
Swamps in North Carolina 908
Swarm Caught in Bag 622
Swarm Clustered on Fence 234
Swarm Clustered on Wagon 142
Swarm Control, Scholl's Method 449
Swarm Control and Increase 313
Swarm, Control of at Out-apiary 467
Swarm, Early in California 245
Swarm, Effect of Cutting Queen-cells.......368, 531
Swarm Hived on Sealed Brood 619
Swarm Prevention and Control 210
Swarm Prevention, Doolittle on 664
Swarm Prevention, Requeening for 806
Swarm Stores More than Old Colony 393
Swarm with Young Queen 911
Swarm, Removing Brood to Prevent 329, 532
Swarms, Camera Tripod to Support Hive on.......311
Swarms Carry Disease 206
Swarms, Catching Stray 516
Swarms, Catching by Decoy Hives 473
Swarms, Four from One Colony 912
Swarms from Diseased Colonies 471
Swarms Going into Other Hives 365
Swarms, J. E. Crane's Narrow Escape.......883
Swarms Made to Cluster by Stream of Water.......723
Swarms Made to Cluster on Pole.......540
Swarms on Fence Posts 31
Swarms, Prime, How Long before First Virgin 619
Swarms, Restriction of Increases Surplus.......451
Swarms Settle on Low Shrubbery 339
Swarms, Shot Down 469
Swarms, why they Go to Hill.......406
Swarms, why they Cluster in Same Place.......955
Swarming and Increase, "Outlaw" on.......541
Swarming at Out-apiaries 337, 467, 574
Swarming, Aspinwall Hive to Prevent....... 70
Swarming Bees that were Cross 518
Swarming of Carniolans in March 817
Swarming Caused by Heat 232
Swarming, Clipping Late No Effect on 244
Swarming Controlled by Young Queen 225
Swarming, Demaree Plan for 447
Swarming, Dequeening without Requeening, to Prevent 998
Swarming, Destroying Queen-cells for 33, 311, 368, 531
Swarming Impulse, Detection of 688
Swarming Not Prevented by More Super Room 205
Swarming Not Stopped by Empty Sections.......882
Swarming Prevented by Excluder under Hive.......394
Swarming Prevented by Removing Brood 329
Swarming Prevented Makes Greater Yield.......993
Swarming, Shaking to Prevent 311
Swarming without Increase 353
Sweet Clover, Biennial yellow 937
Sweet Clover, Crane on 366
Sweet Clover, Frank Coverdale 754
Sweet Clover Grown in Florida.......234
Sweet Clover, Hundreds of Acres of.......113
Sweet Clover Introduced by Beekeeping Farmers 126
Sweet Clover, More Information Needed 751
Sweet Clover, Overcoming Prejudice 462
Sweet Clover Seed, Foster on 8
Sweet-clover Seed, Slow Germination of 166
Sweet-clover Seed Harvesting 230
Sweet Clover, Several Acres Sown.......883
Sweet Clover, World's Champion Grower 285
Syrup. (See Sugar Syrup.)

T

Tartaric Acid Not Necessary 883
Taxes Paid by City Bees 173
Telegraphic Honey Reports 601
Temperature in Cluster 903, 969
Tenement Hives, Crane on 46
Tennessee Convention Reports 224
Tennessee Nectar and Pollen Plants 432
Terms, Explicit 365, 447
Terminology, Some Suggestions 736
Terminology Faulty 365
Texas Beekeeping, W. O. Victor on.......707
Texas Convention Report 707
Texas Field Day 620
Texas Honey Crop 585
Texas Honey Market, Condition of.......795
Texas Honey Prices 208
Texas Prospects for Season 289

Thistle Honey, Byer on 6
Thyme or Summer Savory 590
Tiering up without Excluder 66
Time from Laying of Eggs to Hatching.... 5
Ti-ti Honey, Strong Flavor 694
Top-bars, Apparatus for Setting Wedges in....999
Top-bars, Horizontal Opening through....1000
Toronto, Bees in 246
Transferring from Wall of House 232
Transferring from Box Hive 819
Transferring on Thanksgiving Day 219
Transferring, Marchant's scheme 345
Transferring, Rubber Bands for 952
Transferring, Time for 33
Trapping Robbers Not Recommended 817
Tree for Bee Hive....59, 341
Tree, Getting Bees from without Cutting....232
Trees, Bees Transferred from 990
Tripod to Support Hive by Swarm....311
Trips, how many Bees Make in a Day? 288, 904, 994
Tropics, Beekeeping in 65
Trouble, Mysterious, in West Virginia 942
Tunis, Beekeeping in 690

U

Uncapping with Butcher-knife 886
Uncapping-forks 125, 461
Uncapping-knife, Steam 394
Unfinished Sections, what to do with....734
Uniting in Spring 313
Unripe Honey 710
Utah Honey Crop 600

V

Veil, Improvement in Alexander....305, 694
Ventilated Escape-board 717
Ventilation, Holtermann on 807
Ventilation in Bottom-board 516
Ventilation Removes Moisture 434
Ventilation to Prevent Swarming 457
Ventilated Escape-boards, Bee Space on Both Sides 114, 717
Ventilating by Raising Brood-nest 233
Veranda, 200 lbs. of Honey on 180
Vermont Honey Crop 583
Vermont Honey Exhibit 103
Veteran Beekeeper, Experience of 374
Veteran in New York 430
Village, 190 Colonies in 293
Virgin, Caging Second One in Hive....793
Virgin, How Soon after Prime Swarm....619
Virgin Mating from Upper Story 796
Virgin Queens, Introduction of 771
Virgin, Young, Accepted 837
Virgins, mating early are strongest 256
Vitality of Bees, Holtermann on....807

W

War, Effect of on Texas Honey Market 795
War, Honey in 689
Wasps in Comb Honey 515
Washington Convention Report 150
Water for Bees, Heberle on 811
Water for Bees Sent by Mail....140, 461, 517, 819
Water in Mailing-cage 517
Water, Great Amount Carried by Bees....817
Water, is it for Bees or Brood?....887
Water Method of Introducing 685
Water, to Secure in Apiary 909
Watering Place for Bees 244
Wax and Digestion 489
Wax, Cause of Being Dark 34
Wax Locomotive in Exhibit 381
Wax, "Outlaw's" Method 233, 244
Wax Press for $1.00 820
Wax, Refining of 819
Wax Rendering, Crane on 46
Wax, Weight of in Comb Honey 325
Wax, Yellow, Bees Secreting 939
Wedges in Top-bars, Apparatus for Setting....999
Weighing Hives during Day 904
Western Beekeeping, Future of 621
White Clover at Marengo 489
White Clover, Small Amount in Indiana 765
White Honey for California 884
Wild Flowers in Colorado 166
Willow-herb with White Blossom 999
Windbreaks, Importance of 997
Winter Case, A. C. Ames 889
Winter Case, C. H. Root.... 64
Winter Case, E. G. Carr on 684
Winter Case for Twelve Colonies 46
Winter Cases for City Beekeepers 681
Winter Case, Holtermann 665, 892
Winter Cases of Drygoods Boxes 676
Winter Case Projecting below Bottom-board 113, 717
Winter Case Used as Super 818
Winter Case with Empty Space below Bees....981
Winter Cases, Quadruple 877, 969
Winter Cluster, Location of 997
Winter Disturbance 114
Winter Evenings, to Spend....929
Winter Losses among Specialists 326
Winter Nest, Byer on.... 6
Winter Nest vs. Solid Combs, Byer on....673
Winter of War-time, Poem 596
Winter Stores, Amount Needed 709, 753
Winter Stores, Dr. Miller on amount of....325
Winter Stores, Holtermann on 733
Winter, Disturbing, Bees in 692
Wintering, Boardman Plan 678
Wintering, Holtermann's Comments on 806
Wintering in Australia 683
Wintering in Canada and Ohio 326
Wintering in Clamps Unsatisfactory 775
Wintering in Minnesota 725
Wintering in Pits 668
Wintering in Room with Open Window....153
Wintering in Shed 849
Wintering in South and North....407
Wintering, J. E. Hand on 670
Wintering on Let-alone Plan 693
Wintering on Candy Alone 687
Wintering, Outdoor Ahead of Cellar 366
Wintering Outdoors Preferred in Ontario.... 86
Wintering, Poor Results in New York....475
Wintering Prospects in Canada 928
Wintering Row of Hives Wrapped in Paper....941
Wintering Small Colonies on Three Combs..675, 971
Wire Fence for Out-apiary 327
Wire Held by Staples 231
Wired Frames, Combs Built from Starters in....434
Wires, Heated, Imbedding of 495, 573
Wires, Imbedding by Electricity 897
Wires Imbedded Loose....605
Wires Imbedded out of Line 97
Wires on Alternate Sides of Foundation 647
Wires out of Line 97
Wiring Frames, A. C. Miller on....452
Wiring, Vertical, Makes Wavy Combs 705
Wisconsin Beekeepers Organize 752
Wisconsin Beekeepers at McGregor 550
Wisconsin Convention Reports 225
Wisconsin Honey Crop 600
Woman Keeps Bees in North Carolina....228
Wood-swallow of Australia 934
Worker Combs, to Secure 631
Workers, Time Required to Develop 125
Yellow Sweet Clover ahead of White....937
Yellow Wax, Bees Secreting 939
Yield, Fisbeck's Plan for Increasing 553

EDITORIAL

Adulteration of Honey, Important Case of.... 43
Adulteration in Germany 122
Adulteration, very Little in Honey....614
Alaska Beekeeping 361
Apalachicola Apiary on Cover of July 1 Issue..485
Apalachicola Apiary, Latest Reports from..281, 321
Apalachicola Bees of Root 201, 243
Apalachicola Proposition Not a Money-maker...572
Apalachicola Proposition, did it Pay?....363, 364, 403, 404, 444
Apiary of D. M. Bryant on Cover of Aug. 1 issue.
Apiary of E. G. Ward on Cover of Aug. 15 Issue.
Apiary of J. A. Nininger 121
Apiarian Laboratory of U. S. Government, cover of Nov. 15 GLEANINGS.
Apicultural School at Iowa 82
Army Worm Not Destructive to Clover....745
Army Worm on Alfalfa in Colorado....614
Artificial Substitute for Pollen 121
Asters at the Swamps in and near Medina 746, 747
Asters that Furnish the Most Honey....747
Automobile Accident 878
Automobile Truck, how much it Costs per Mile 789
Automobile Truck vs. Motor Boat for Moving Bees 283
Baldwin on the Editorial Staff of the *Review*...321
Bee Botany at Medina 746
Bee Country, Wonderful in the Cold Northwest.446
Bee Disease Not Transmitted by Foundation ..202
Bee Disease, Destruction of Germs by Heat 703, 704

Bee in Advertising 659
Bee Inspection in Idaho 657
Bee Market in Holland, Cover of Oct. 15 Issue 789
Bee Moth, Life History of 83, 84
Bee Supply Year Big 443
Bees and Fruit 323, 324
Bees and Good Land.........................243
Bees and Grapes 82
Bees and Poppies 81
Bees and Poultry, Combination of Two....... 3
Bees and Red Clover 525
Bees, Black, Eliminated by Foul Brood...... 2
Bees, Destruction of in Colorado...........615
Bees in Candy Factory 658
Bees in Two Carloads to Virginia Dismal Swamp 572, 923
Bees Killed by Smelter Smoke around Denver..401
Bees, Moving in Car Lots, Important Requisite..404
Bees on Cover..............................241
Bees Recognized in Farm Papers 283
Bees, Shipping without Combs 446
Bees, Those Carload Shipments to Virginia....964
Bees, what Makes Them Cross?...............834
Bees Wintered Well around Philadelphia 361
Beekeepers' Association in Louisiana 657
Beekeepers' Supplies, Standardization 124
Beekeepers of City a Menace to Other Beekeepers 162
Beekeeping in Alaska 361
Beekeeping in Brazil 361
Beekeeping in City Limits 162
Beekeeping Taught in Y. M. C. A. Schools......282
Bee-tree, Broken Arm and Hundreds of Stings..401
Bee-tree, Climbing Dangerous 589
Bingham, T. F., In Memoriam of.............965
Biology, Elementary 835
Black Bees Eliminated by European Foul Brood 2
Blue Verbena 571
Boardman, H. R.............................322
Boneset or Thoroughwort 571
Bottled Honey Sold by The Root Co. over the Country 966
Breeding in Cellar 122
Brood-rearing in Bee-cellar 3
Brood-rearing, Plan to Keep Down in Florida..281
Bulletin on Bees from Texas 83, 84
Bulletin of Indiana on Bees.........526, 527, 528
Bulletin from Massachusetts Showing the Relation of Bees to Horticulture 701
California, Prospects in 121
Candy Factory, Bees in 658
Candy Hard, Less Water Used 81
Candy Hard, Softening and Melting in Hives..122
Candy vs. Sealed Stores 791
Candy, New Way of Making 121
Carbon Bisulphide on Combs Not Offensive to Bees 616
Carload of Bees from Apalachicola 361
Carload of Bees, Second from Apalachicola....402
Carload of Bees, Unloading in Warehouse.....402
Carload Shipment of Bees..........402, 403, 404
Carload Shipments of Bees to Dismal Swamp..964
Carloads, Last Two, Safe Arrival 444
Carloads of Bees, Those Two to Virginia..572, 923
Cartoons for GLEANINGS 361
Cary, H. F., in Accident 878
Cavanagh, F. B., Death of 161
Cellar Breeding, Conditions for 122
Cellar Wintering in Medina 321
Chaff Division-boards, Cheaper and Quicker Way to Make 833
City Beekeeping in Florida 202
City Beekeepers a Menace to Other Beekeepers..162
Clover Not Promising 486
Clover vs. Buckwheat Flows and how they Affect Temperament of Bees 834
Cluster in Winter, Temperature of..........879
Cold February and Possible Effect on Wintering 201
Colonies, Making Out of Sugar 920
Colorado Honey-producers' Association on Net-weight Law 529, 530
Comb Foundation Not Transmitting Foul Brood.202
Combs, Old, Rendered at Massachusetts Station.921
Co-operative Society of Beekeepers in Minnesota 658
Cook, A. J., Vindicated 81
Crop, Enormous, of Cuba 362
Cross Bees, what Makes Them?...............834
Destructive Smelter Smoke in and about Denver 401
Die Biene und der Breitwabenstock 746
Dismal Swamp Beekeeping 572, 923
Disturbing Bees in Winter 84
Dividing and Running for Comb Honey....... 83
Division-board, Chaff, Quicker Way to Make...833
Donahey and Other Celebrities at Medina......525
Drouth Not Broken by Late Rain.............657
Editorial Staff of the *Review* 321
Elementary Biology 835
European Foul Brood Not Feared as Formerly.. 2
Extractors, Gearless 968
Extractors, Power Driven, Greater Demand for 443
Fads and Fancies of Inventors 877
Federal Net-weight Law. See Net-weight Law.
Feeding Colonies in Midwinter, Outdoors and in Cellars 963
Feeding, Outdoors at Medina 569
Feeding Sugar to Make Colonies 920
Feeding when Robbing is Bad 745
Ferree, J. W., in Accident 878
Field-day Meet at Medina...........445, 486, 525
Field-day Meeting in Iowa 443
Field Meet, New South Wales on Cover Picture of Oct. 1 Issue.
Field-day of the Wm. Edwards Co. at Medina..525
Floods in Texas 41
Florida, Cruiser Trip on East Coast.........243
Florida, East and West Coast of..........242, 243
Florida Lands, Good and Bad 203
Florida Trip, Ours, Exaggerated 323
Florida Visitors of A. I. Root.............204
Florida, will the Boom Last?...............203
Foods Rich in Sugar 920
Foul Brood, European, Not Feared 2
Foul Brood, Few Germs Not Killed by Boiling..964
Foul Brood, how it Travels 202
Foul-brood Inspection Work Remarkable 322
Foul Brood Not Transmitted by Foundation....202
Foul-brood Quarantine in Imperial County.... 4
Foul Brood Scattered by Careless Beekeeping...284
Foul Brood, Shaking to Cure, Effective.......123
Fountain of Eternal Youth 203
Freight Rate to Dismal Swamp vs. Apalachicola 924
Frost and Effect upon Asters 747
Fruit Growers Tribute to Bees 324
Golden or So-called Five-banded Bees.........485
Government Apiarian Laboratory for Bees, Cover of Nov. 15 GLEANINGS.
Graham, C. I., the Case of 284
Guarantee Clause Ruling on Pure-food Packages Deferred 485
Hard Candy. See Candy, Hard.
Hay from the Second Growth of Sweet Clover..659
Hives, Basic Principles of Modern 877
Holland Beekeeping, Cover Oct. 15.
Holtermann Winter Cases 789
Holtermann Winter Cases Tried at Medina.....878
Honey Adulteration with Invert Sugar, Important Case 43
Honey Exhibit at Connecticut Fair 833
Honey for Canning Purposes 660
Honey from the South 42c a Gallon 792
Honey Market in Ontario 201
Honey, Mashed Sent by Parcel Post...........919
Honey Not Adulterated Much 614
Honey of High Food Value 920
Honey, Price of Not Affected by War.........790
Honey Prospects, 1914 486
Honey Slack during Holiday Period 1
Honey, should the Price Advance in Proportion to the Price of Sugar? 660
Honey, Standardization of..................965
Honey, Substitute for Alcohol 702
Honey, 270 Tons by One Man..................362
Honey, Use of Encouraged by Great Steel Interests 702
Honey vs. Syrup, Feeding Value 789
Honeybees as Pollinators 701
Honey-crop Conditions and Prices....526, 613, 657
Honey-crop except of Clover Same as Last Year 745
Honey-dew Honey 701
Honey-plants in the Swamps 571, 572
Imbedding Wires in Foundation 485
Increase by Feeding or Swamp Beekeeping.....920
Increase in Cellar 122, 321
Indiana Bulletin on Bees...........526, 527, 528
Inspection Work, Remarkable 322
Introducing, Miller's Smoke Method 42
Introducing, Push-in-the-comb-cage Method 922, 923
Invert Sugar as an Adulterant Detected by Government 43
Invert Sugar Eliminated by War.............964
Inspector's Report for Iowa 363
Inventors, Would-be and Who are Not........877
Iowa, Foul-brood Inspector's Report 363
Langstroth, Old Book.......................281
Longevity a very Important Factor...........242

Man who Never Loses Bees ... 322
Marchant's Scheme of Transferring Not a Success 362
Market Quotation, Uniformity of ... 1
Medina Field Day ... 445
Mercer, H. J., in Sing Sing Prison ... 281
Migratory Beekeeping ... 968
Migratory Beekeeping to Apalachicola ... 42
Migratory Beekeeping in and about Medina ...
Mileage of Automobile, Cost of ... 789
Milkweed, Pollen Masses ... 572
Miller Smoke Method of Introducing ... 42
Misbranding and Adulteration of Spraying Mixtures ... 82
Misbranding, Whom does the Resposibility Rest upon? ... 660
Montreal Beekeepers' Convention ... 963
Mosquito Hawks, Destructive Work of at Apalachicola ... 444
Motor Boat Load of Bees on Cover, June 1 ... 402
Motor Boat vs. Automobile Truck for Moving ... 570, 571, 572
Mountain Scenery on Cover Picture of Sept. 15 Issue ... 701
Moving Bees in Car Lots, Important Requisite ... 404
Moving the Bees to Southland for Increase ... 42
Names, Simplifying ... 121
National Convention to be Held ... 42
National Net-weight Law ... 361, 401
National Net-weight Law. See Net-weight Law.
Net-weight Law, A. S. Mitchell on ... 701
Net-weight Law, All about what it Means ... 487, 488
Net-weight Law, Alsberg on ... 488
Net-weight Law and how it Applies to Comb Honey ... 530
Net-weight Law and its Relation to Extracted Honey ... 487
Net-weight Law Causing Inconvenience to Producers ... 615
Net-weight Law, does it Affect Extracted Honey? 488
Net-weight Law, Effect on Prices ... 616, 617
Net-weight Law, Flood of Inquiries Concerning ... 617
Net-weight Law, Grumbling Over ... 790
Net-weight Law Interpreted by Solicitor ... 528
Net-weight Law Not Altogether a Nuisance ... 616
Net-weight Law, Offensive Ruling ... 921
Net-weight Law, Responsibility for Misbranding 660
Net-weight, Who is Responsible for Violation of . 528
Net-weight Law, why one should Comply with ... 613
Nomenclature, Simplifying ... 121
Nucleus Yard, Ours, on Apalachicola River ... 525
Ontario, Northern, Fine Bee Country ... 446
Orange Honey ... 203
Orchardists Asking for Bees ... 323
Outdoor Feeding at Medina ... 569, 570
Out-apiaries Operated by Motor Boat ... 283
Outyards, where to Locate ... 403
Palmetto when Good and Bad ... 243
Parcel Post, Limitations of ... 569
Parcel-post Shipments of Honey Disastrous ... 719
Pasturage, Fall, Cover of Dec. 1 Issue.
Phillips, Dr., on Cluster in Winter ... 879, 880, 881
Plain Sections Lighter than Beeway Sections ... 701
Poison, Not, but European Foul Brood ... 615
Pollen, Artificial Substitute for ... 121
Pollen, artificial ... 282, 283
Pollen Masses from Milkweed ... 572
Pollen, Natural Far Superior to Artificial ... 282
Pollination of Fruit Trees ... 324
Poppies and Bees ... 81
Poppleton on Mosquito Hawks ... 444
Poppleton, O. O ... 243
Poultry and Bees, Combination of ... 3
Poultry Life Editor a Beekeeper ... 1
Power-driven Extractors, Greater Demand for ... 443
Price of Wax ... 658
Prices for 1914 ... 487
Prices, should they Advance on Comb Honey because of Net-weight Law? ... 616, 617
Prospects for the Season ... 362
Prospects in Florida ... 161
Prospects of the Season Good ... 444
Push-in-comb-cage Method of Introducing ... 922, 923
Quadruple Winter Cases *a la* Holtermann ... 878
Quarantine, Foul-brood, in California ... 4
Queen Business Slightly Exaggerated ... 323
Queen Mailing-cages, Water for ... 122
Queen May Not be to Blame ... 241
Queens, Early Demand for in 1914 ... 443
Queen-bee Business of Quirin Slightly Exaggerated ... 443
Queen-breeding Articles ... 241
Quotations, Market Uniformity of ... 1
Quotations on Honey Easing up ... 2
Rains in California ... 81
Rains, Late, Starting Honey-flow ... 487
Repp Bros., of New Jersey ... 243
Retrospect for 1914 ... 960
Reversible Frames Not Wanted ... 877
Robbing, New Way to Stop ... 613
Root, A. I., and His Florida Visitors ... 204
Root, A. I. and his Windmill, Cover of GLEANINGS for Nov. 1.
Root Bees at Apalachicola ... 201
Root Bees in Apalachicola, Florida ... 243
Root Company Selling Honey over the Country ... 966
Root, Cruiser Trip Down East Coast of Florida . 243
Root, E. R., Trip to Florida ... 123
Root, E. R., Open Letter from Florida ... 242
Root, Queen Business, Florida, Exaggerated ... 323
Ruling of Guarantee Clause Deferred ... 485
Scythe, Handy for Bee-yards ... 444
Selser on Feeding to Make Colonies ... 920
Shaking to Cure Foul Brood Effective ... 123
Signing Name to Contributions ... 122
Smoke Method of Introducing Not Approved ... 968
Smoke method of Introducing, Miller's ... 42
Smoke Method of Introducing not always Reliable 657
Snow for Closing Entrances ... 963
Snows and Clover ... 201
South American Honey, 42 cts. a Gallon in New York ... 792
Spanish Needle ... 702
Special Numbers for GLEANINGS ... 41
Spraying Liquids to Kill Codling and Gypsy Moths Devastating Whole Apiaries ... 322
Spraying Mixtures Misbranded ... 82
Sprays for Fruit-trees Killing Bees ... 964
Standardization of Beekeepers' Supplies ... 124
Standardizing Honey as a Food ... 965
Straw Skeps of Bees in Holland for Sale, Cover Oct. 15 Issue ... 789
Sugar, Brown vs. White ... 702
Sugar, is it too Expensive to Feed? ... 659
Sugar, will it Rise to 15 cts.? ... 703
Sugar, will it Rise or Fall? ... 745
Swamp Beekeeping in and about Medina ... 570, 571, 572, 614, 702, 747, 791
Swamp Beekeeping vs. Cheap Honey Feeding at Home ... 791
Swamp Beekeeping vs. Feeding to Make Increase 920
Swamp Milkweed ... 571
Swamps at Hudson and Akron ... 702
Swamps at Mentor ... 572
Swarming, Methods for Controlling Same ... 83
Sweet-clover Hay, Second Growth ... 659
Temperature of the Honeybee Cluster in Winter 879
Temperature Necessary to Kill Germs of Foul Brood ... 703, 704
Texas Bulletin ... 83, 84
Thermometer, Electric and Mercurial ... 879
Trainload of Bees from Florida to Ohio ... 403
Transferring, A. B. Marchant's, Not a Success ... 362
Truck, Cost per Mile of Operation ... 789
War and its Effect upon West Indian and South American Honeys ... 658
War and its Effect on Price of Extracted Honey . 792
War in Europe, Its Effect on Honey Prices ... 613
War Lords of Europe, Crime of ... 792
War Not Affecting Price of Table Honey ... 790
Water in Mailing-cages ... 122
Wax-rendering Station in Massachusetts ... 921
Weather Conditions in Ohio and in Canada ... 323
Weather in Southern Florida ... 201
West India Honey, 42c a Gallon in New York ... 792
White on the Destruction of Bee Disease Germs by Heat ... 703, 704
Wild Sunflowers ... 571, 702
Wiley, Dr., on Food Value of Honey ... 920
Windmill of A. I. Root, Cover of Nov. 1.
Winter Feeding Outdoors and Indoors ... 963
Winter Nest Again ... 41
Winter Nest, A. I. Root on subject of ... 1
Winter Setting in Early ... 719
Wintering Reports ... 241
Wintering and Prospects for Honey Crop ... 282
Wintering Bees in South more Expensive than North ... 281
Wintering Conditions Compared in Ohio and Ontario ... 323
Wintering Excellent all over United States ... 321
Wintering Experiments by Dr. Phillips 879, 880, 881
Wintering in Quadruple Holtermann Cases ... 789
Wintering in Quadruple Winter Cases ... 878
Wires, Imbedding in Foundation ... 485

A. I. ROOT'S DEPARTMENT

Note.—Where two numbers are given, the first refers to the page in the advertising department, and the second one to the number of the journal; thus, 18-20 means page 18, Oct. 15, etc.

A B C Book, Origin of 696
Achan, an, in Cleveland 278
Advertising Liquors in Dry Territory 80
Age, Old, Deferred 519, 522, 20-13, 699
Air, Fresh, for Sleeping-room 75
Air we Breathe 482
Alfalfa, Objections to 159
Amadumbe of South Africa 398
American Poultry Journal Yearbook 20-12
Anti-cigarette War 396
Anti-saloon League Yearbook 21-10
Appendicitis and Surgery in General 442
Apples and Olive Oil 78
Astrology a Myth 610
Automobile, Climbing on 157
Automobile, My Electric 653
Automobile Pump that wouldn't Work 35
Axtell, Mrs. S. J. 960
Baby, Youngstown, Left in Rain 76
Bees in Apple-orchards 479
Bees and Cherries 830
Bees in Orange-groves 479
Bees, Spraying 830
Beekeeping in 1870 607
Bible, Leaf from in Shoe-shop 914
Borax in Bathing 18-17
Boy, a Bright, Wanted 825
Boy, the Drowned 355, 395
Breathing, Daily 698
Brewers' "Home-rule Amendment" 16-20
Bryan on Woman Suffrage 484
Buttercups in Florida 962
Cactus, Spineless 828
Canadians as Good Neighbors 916
Cantaloup Melons 876
Casaba Melons 876
Cassava Cuttings 23-7
Cassava for Poultry 37
Cassava for Chickens 360
Cassava for Food 238
Cassava, More about 280
"Chasm," the Opening 400
Cheese as an Article of Diet 566
Cheese Well Ripened 699
Cherries as a Health Food 565
Chickens in Florida 962
Chickens in Garden-patch 279
Chiropractic Doctoring 525, 526
Church, Taking Front Seat in 198
Churches, Country, Doubling up 477
Cottage Cheese and Buttermilk 20-15
Cottages in Florida 740
Crime and Pauperism in Kansas 484
Criminals, Breeding 568
Crops, Two in the Same Ground 785
Cultivator Run by Power 830
Cuttings, Rooted 440
Darkness, Out of, into Light 523
Dasheen and Irish Potatoes 79
Dasheen Bulbs for Planting 919
Dasheen Culture 199
Dasheen in Alabama 398
Dasheen in Canada 784
Dasheen in Cuba 611
Dasheen in Jamaica 318
Dasheen, Keeping Clear from Weeds 398
Dasheen Tubers to Our Readers 360, 21-10
Dasheens in Florida 39, 158
Dasheens in Ohio 39
Dasheens in our Florida Garden 610
Dasheens, 1000 Bushels per Acre 40
Dasheens, 21 lbs from One Plant 39
Dasheens when Frost Threatens 876
Desert, in the, with God 235
Divining-rod for Water-witching 157
Droppings, Poultry, for Fertilizer 439
Drugs, Baneful 38
Drunk, Getting, with a *Clear Conscience* 823
Drunkenness a Disease 483
Ducks, Indian Runner 238
Dwarf Essex Rape 397
Dynamite for Planting Trees 700
Early Years of Editor 913
Edison on Cigarettes 484
Edison and the Cigarette Business 21-15
Eggs from China 962
Eggs, Starting in Incubator by Hens 397
Farmers Fighting a Duel 738
Feijoa and Dasheen 18-17
Finger-rings, Galvanic 23-7
Flies, Repellants for 743
Florida, Buying Land in 118
Flying to be Made Safer 159
Flying-machines, 1000 Miles in 900 Minutes 78
Forts and War-ships 739
Gallstones, Cause of 831
Garden, Our Florida 315
Gardening in Florida 876
Gardening, having the Ground Fine 199
Gas, Natural, in Old Times 913
Gaston, Lucy Page 396
Gasoline to Run Cultivator 21-13
Gifts of God, are there More to Come? 915
Gifts, God's Natural 913
Gleanings, Start of 695
God Repented he had Made Man 916
Grapefruit as a Medicine 442
Grasshoppers as Food for Poultry 37
Greiner, T., Death of 874
Helianti 918
Helianti and Artichokes 918
Helianti, New Wonder Plant 317
Helianthus the "Wonder Plant" 21-10, 440
Hen, the Busy 741
Hen, 300-egg 38
Hens, to Make Them Lay 869
Highway Robbery in Cleveland 870
Honey Crop, Large, in Florida 20-15
Honey, Selling 200
Horseradish and Christianity 478
Horseradish Business 277
Horseradish, Putting up for Market 829
Horse-trade Spoiled 650
Hotbed—to Make Rooted Cuttings 439
Indian Runner Ducks in Florida 962
Injustice, Defeat of 652, 780
Insurance for "the Home over There" 197
Insect Pests, how to Destroy 17-21
Intemperance, Effects of Not Half Told 568
Intemperance in Large Cities 115
Irrigation for Gardens 917
Irrigation for Potatoes 917
Irrigation, Skinner System of 782
Job, Woman Gives Hers to Saloon-keeper 788
Keeping Something Growing all the Year 918
License, Supreme Court Hits it 483
Life or Death, Mystery of the Sexes 77
Life, Best Days when 73 Years Old 278
Liquor in the Navy, End of 356
Liquor Advertisements 920
Living, High Cost of 18-20
Living, Low Cost of 653
Living to be 100 Years Old 832
London Temperance Hospital 400
Love ye Your Enemies 651
Love-letters from a Subscriber 522
Lynching Colored Man in Bradentown 277
Marconi in Boyhood 564
Medical Societies Denounce Alcohol 612
Medicines, Quack 743
Midnight Sun, Land of 116
Miller, Dr. C. C., acquaintance with 697
Mites on Chickens 525
Mites on Poultry 441
Moth-ball for Squash-bugs 317
Moth-balls on Squashes 611
Murder, Penalty for 276
Mustard for Chickens 38
Notions, Silly and Superstitious 18-20
Ohio Dry 786
Oil and Gas 40 Years Ago 913
Old People when Helpless 520
Over-eating, Sore Throat, etc. 319
Oxydonor and Other Fakes 483
Oxypathy, etc. 567
Passenger Service by Flying-machine 160
Penitentes of New Mexico 959
Pests of Florida 238
Pews, Empty, in Our Churches 275
Pickpockets 873
Pickpockets, Beware of 742
Pistols, Toy, for Children 916
Pistols, Toy, should be Discarded 916
Plants, Choice, to Preserve 21-11
Plants, Potted 440
Poisons around the Premises 21-15
Pollyanna, Glad Book 155
Poor Man has No Chance to Keep Bees 480

Postal Cards, Addresesd 17-21
Potato, Early Ohio, Grown by Editor 917
Potato, Picture of Large 917
Potatoes in Florida 316
Potatoes, New, 60 cts. a Peck 524
Potatoes, New, 40 cts. a Peck 438
Potatoes, Sporting Habit of 481
Potatoes, Northern-grown Seed, for Florida 200
Potato-growing in Florida 785
Poultry and Potatoes in Florida 435
Poultry, Cost per Year for One Hen 36
Poultry in Florida 480
Poultry-yards, Convergent 358
Prayer, Model, from a Friend in Texas 278
Preacher who Visited a Saloon 276
Producer to Consumer 482, 826
Prohibition does not Prohibit 484
Prohibition, does it Prohibit? 656
Prohibition in the Army 16-20
Prohibition, Nation-wide 786
Prohibition, State-wide 567
Pump, Automobile, Trouble with 35
Quail, Plea for 744
Queen, $20 609
Rainbow Corn, Burbank's 783, 827
Raisins by the Ton 481
Real-estate Business in Florida 741
"Rejoice and be Glad," 800 Times 156
Revenue Loss of $30,000,000 16-20
Rheumatism, Getting Rid of 961
Roaches, to Destroy 280
Robbing Deaf Folks 742
Robbing Invalids 525, 654
Robbing Sick People 483, 567
Roselle and Cranberries 40
Saloons and Manufacturing 788
Saloon Business, Doolittle on 526
Saloon Fight in Berne, Ind. 20-13
Saloons, Good they have Done 17-20
Saloons in Berne, Ind. 435
Saloons, Licensing 356
Sanatogen, Cottage Cheese, etc. 655
Secrets of Success 18-17
"Seed Bees" 479
Seed, Saving Your Own for Gardening 118
Sermon by H. S. Fitsch 561
Sesame in the West Indies 481
Sesame Plant 239, 917
Sesame, the New Food Plant 399
Shall Ohio be Dry? 27-21
Sheriff Ready to Die at Post 276
Showers, Artificial Summer 781
Sitting-hen Story My 237
Skepticism and the Bible 777
Skirts, Modern, Women's Dress 319
Socialism, etc. 957
Spurs, Cutting from Fowls 441
Squashes, Bugs on 524, 20-13
Squash-bugs, etc. 785
Story about Bee Culture, A. I. Root's 649
Strawberries in November in Medina 961
Suffrage in Illinois 80
"Swat the Saloons" 824
Sweet Clover, Advance Crop for Sugar Beets .. 920
Sweet Clover as a Soil-maker 239
Sweet Clover by the Roadside 700
Sweet Clover Coming to its Own 829
Sweet-clover Seed, Load of worth $1400 919
Temperance and Missionary Work in New Mexico 20-12
Temperance Instruction 23-7
Tennessee, Good News from 18-20
Terry and Temperance 200
Terry, if all did as he does 280
Thanking God for Canadian Neighbors 916
Tobacco, Use of by Ministers 396
Tuberculosis, Prevention of 78
Urinary Troubles, Dieting for 23-8
Vera Cruz, Mexico 656
Virginia Goes Dry 787
Voting as we Pray 612
War in Europe 737
Waste, Annual, of $15,000,000 654
Waste of $100,000,000 a Year 744
We be Brethren 870
West Virginia Sets the Pace 568
Wheat, Flaked, Machine for Making 240
Wife, Blind, Killed by Husband 875
Wilcox, Ella Wheeler, and T. B. Terry 240
Windmill that Printed GLEANINGS 40 Years Ago 854, 855, 871, 872
Wright Brothers' Improvements 79

ILLUSTRATIONS

African Jungle 379
Alexander Feeder, Finsted's Metal 21, 218
Alexander Veil, Peterson's Improvement 305
Alfalfa, Government Bulletin Pictures 859
Anderson, Geneva 809
Ant-proof Hive-stand 901
Apalachicola Apiary, July 1 cover.
Apiary, Adamson's, Australia, Oct. 1 cover.
Apiary and Poultry Plant, Bartlett, Ohio 17
Apiary and Poultry-house, Wixson's 16
Apiary at Akahoshi, Japan 334, 335, 336
Apiary, Baldensperger among Alps 419, 420
Apiary, Bartlett's, Ohio, January 1 cover.
Apiary, Baumbach's, Wisconsin 803
Apiary, Bowen, Ontario 598
Apiary, Bryant's, Virginia, Aug. 1 cover.
Apiary, Caraway's, Texas 263
Apiary, Dervishian, Cyprus 587
Apiary, Donaldson, Missouri 105, 106
Apiary, Duax, Wisconsin 458
Apiary, Duax, Wisconsin, May 1 cover.
Apiary, Durden, Georgia 343
Apiary, Foster, Ohio 849
Apiary, Fox's, South Dakota 940
Apiary, Gaetano Piana, Italy 294, 295
Apiary, Gaylord's, Minnesota 942
Apiary, Gebhardt, Wisconsin 20
Apiary, Harvey's, Colorado 253, 254
Apiary, Henry's, Oklahoma 723
Apiary, Howden's, New York 298
Apiary in Bee-shed 720
Apiary, Jacobson's, New Zealand 635
Apiary, Johnson's, Kentucky 466
Apiary, Lininger's, Kansas, Feb. 1 cover.
Apiary, Mayo's, New Jersey 62
Apiary, Mayo's, New Jersey, January 15 cover.
Apiary, McClanahan's, Idaho 300
Apiary, McClanahan's, Idaho, April 15 cover.
Apiary, McLendon's, Alabama 978
Apiary, McIntyre's "Sespe" 711, 712, 713
Apiary, Mills, New Jersey 175
Apiary, Mott's, Michigan 384, 385
Apiary of Veteran Beekeeper 430
Apiary on New York City Roof, March 1 cover.
Apiary on Roof 168
Apiary, Paine's, Idaho 110
Apiary, Pollock's, Ontario 672, 673
Apiary, Robert Peschko's Connecticut 937
Apiary, Rodman's, Kansas 22, 224, 226
Apiary, Root, Apalachicola 306, 544
Apiary, Root Co.'s., Apalachicola, July 1 cover.
Apiary, Root's, New Jersey 64, 212
Apiary, Root's, Ault Yard, Dec. 15 cover.
Apiary, Root Co.'s Nucleus Yard, Florida, July 15 cover.
Apiary, Root's, New Jersey 64
Apiary, Sommer's Denmark 986
Apiary, Stevens', Minnesota 981, 982
Apiary, Stevenson's, Missouri 258
Apiary, Valentine Uhrich's Pennsylvania 936
Apiary, Ward's, New Zealand, August 15 cover.
Apiary, Warner, New York 13
Apiary, Woodward's, New York 422, 423, 424
Apiary Yielding Large Crop of Milkweed Honey 594
Apiary, Young's, New York 179
Apiary, Zautner's, New York 177
Apiary, Zedeker, California 103
Apiaries of Iowa Beekeepers 714, 715
Apiarian Laboratory, Nov. 15 cover.
Apples on Tree 96
Apples, Growing on Trees, Feb. 1 cover.
Apples, 500 Bushels 95
Aster, White in Kentucky 465
Australian Bird, Bee Pest 934, 935
Automobile, Selling Honey from 425
Auto Truck for Moving Bees 414, 426
Baby Abandoned 76
Backache, Whiteside's Remedy for 434
Backlot Buzzer 433, 475, 516, 559, 605, 646, 691, 735, 775, 817, 867, 090, 953, 997
Barrels of Honey, Unloading of 546
Basswood Border to Field 854, 855
Bee Cellar, Selwyn's, Ontario, September 1 cover.
Bees, Enlarged Views of, April 1 cover.
Bee Enthusiasts, Crowd of 844
Bee Illustration on Writing-pad Cover 111
Bee Market, Holland, Oct. 15 cover.
Bee Market 804, 805

Bee Tree, Transferring from 990
Bee Tree, Largest in World 375, 376, 377
Bee Tree, Bees from 219, 221, 222
Bee-tree, honey from, March 15 cover.
Bees in City 931, 932, 933
Bees Flying on Warm Day 216
Bees on Hat 943
Bees Killed by Isle-of-Wight Disease 57, 58
Bee-brush, Manley's 998
Bee-shed in Arizona 720
Beekeeper Dressed in White and Black........721
Bird, Bee Pest 934, 935
Black and White, Effect on Bees.............721
Blower to Free Supers of Bees...............640
Boardman Feeders, Filling 801
Boat in Florida with Load of Bees...410, 411, 412
Box Hive Split Open 851
Box Hive with Crock Super 850
Brush Made of Rope 998
Buckbush 896
Buckwheat in California 135
Buckwheat in Missouri 590
Bureau Hive 52
Camel Carrying Beehives 417, 418
Canal by A. I. Root's Garden 318
Candy, Hard 27, 28, 29
Capping-melter, Reese's 558
Car of Bees, Interior Arrangement for........547
Cartoon, Donahey 184
Cellar, Boardman's 679
Cellar, Leonard 727
Cellar, Ritland's Side-hill 899
Cellar, Selwyn's 678
Cellar, Selwyn's, Ontario, September 1 cover.
Chaff Division-boards, Simpler Way of Making..866
Chickens, A. I. Root 357, 358, 359
Chincapin 894, 895
City, Bees in 931, 932, 933
City Beekeeping Successful 349
City Map Showing Bees.....................188
City Roof, Bees on 168, 169, 170, 171, 172, 173
Clipping Queen 272
Colony Neglected 264
Colony that Filled Seven Supers.............. 55
Colonies Strong in Spring 677
Comb Built without Foundation 853
Comb Honey from Double Colony 593
Combs Built Out of Doors 984, 985
Combs, Good and Bad 372
Combs in Box-hive Super 852
Comb-honey Super, Gressman 214, 215
Concrete Hive-stands ..629, 630, 776, 845, 846, 847
Convention, Canterbury, New Zealand 637
Convention, Iowa State 100
Convention, Iowa and Wisconsin 550
Convention, National 228
Corn, Rainbow 784
Cover, Abbott 847
Cover, Kearney's Combination 606
Cow Cabbage 134
Dadant, C. P., in Italy 296
Dasheens in Florida 317
Dasheens 6½ Feet Tall 866
Division-boards, Chaff, Simpler Way of Making.866
Drone-laying Queen 309
Dutch Bee Market, Oct. 15 cover.
Ellis Hall, Ohio Convention Held at.........119
Engine, Hutchinson's 503
English "Skeppist" 588
Entrance Guard, Metal 911
Entrance, Jordan's Adjustable 765
Exhibit of Crops of Honey 513
Exhibit, Martine's at Kentucky Fair..........388
Exibit, New Jersey 639
Exhibit, Oklahoma State Fair 382, 848
Exhibit at Toronto Exposition 61
Exhibit, Vermont 104
Extractor, Home-made 174
Extractor, Hutchinson's Power 501
Extracting-house, Anderson's Portable 808
Extracting House, Hutchinson's 500
Fastening Foundation, Scholl's Method....534, 535
Feeder and Hive-bottom 800
Feeder, Finsted's Metal 218
Feeder, Jay Smith's 632
Feeders, Filling Boardman 801
Feeding with Bottle 900
Feeding Hard Candy 27, 28, 29
Feeding Loaf Sugar 68
Fence, Too Much of a Good Thing 341
Field Meeting, Australia, October 1 cover.
Field Meeting, Australia 762
Field Meeting, Brazil 756, 757
Field Meeting, Canterbury, N. Z. 637
Field Meeting, Connecticut 898
Field Meeting, Iowa 754, 755, 756, 766
Field Meeting, Iowa 754, 755, 756
Field Meeting, Medina, Ohio 759
Field Meeting, New Jersey 65, 760
Field Meeting, New York 758
Field Meeting, Ohio, State 766
Fire-pot, Scholl's 534, 535
Florida Garden, A. I. Root's 314, 315
Florida, Unreclaimed Forest 741
Forest Unreclaimed in Florida 741
Foundation, Advantage of 853
Foundation Fixing Tools 497
Foundation, Plan for Fastening 897
Frame Broken 452
Frame Rack, Scholl's 534, 535
Frame Spacer 912
Frames, Malachowski's 542
Frame-nailing Jig 452
Freight House, Bees in 410
Garden, A. I. Root 314, 315
Goldenrod, Field of, Dec. 1 cover.
Government Apiarian Laboratory, Nov. 15 cover.
Government Experimental Apiary 856
Grafting done by Little Girl ....9..39, 939
Grape-arbor Apiary 103
Gum Trees in California 303, 304
Hammond, Uri 268
Hat, Bees on 943
Hive, Bureau Pattern 52
Hive Cover, Bender's 430
Hive, Double 592
Hive, Leonard 726, 727
Hive, Long Idea 391
Hive of Wickerware 716
Hive, Observatory 460
Hive Ornamental 380
Hive with Seven Supers 55
Hives, Earthenware 626, 627
Hives, Hopkins' Ornamental 182
Hives in Solomon's Castle 415, 416
Hives, Malachowski's "Elita" 541
Hives, Octagonal 350, 351
Hives Ready for Winter Case 665
Hive-bottom and Feeder 800
Hive-cover, Abbott 847
Home, E. A. Duax 459
Home of Henry Mills 174
Honey from Bee-tree, March 15 cover.
Home, G. C. Brocaw's 740
Honey, Unloading from Car 546
Honey-house, Mott's, Michigan 385
Hornets, Device to Catch 383
House Apiary, Newsom 180
Introducing Blocks, Stewart's 560
Iowa Beekeepers and Apiaries 714, 715
Johnson, W. M. 901
Jumbo Hive, Connor 183
Jungle in Africa 379
Isle-of-Wight Disease Killed Colony 57, 58
Laboratory, Government Experimental 856
Labels, Holtermann's Scheme for Putting Paste on 802
Larsen, Anton, and Six Boys............... 22
Launch for Moving Bees, June 1 cover.
Launch for Moving Nuclei 413
Lewis, J. M. 375
Lilacs, Mountain 135
Loaf-sugar Feeding 68
Mailing-cage, Water in 140
Mailing-cage with Water 517
Mailing-cage with Melted Candy.............893
Malachowski, Auguste 540, 543
Map of City Showing Bees 188
Match-holder on Smoker 912
Mesquite in California 135
Migratory Beekeeping in Germany 421
Milkweed in Michigan 595
Miller, Arthur C. 290
Miller, Lucile 514
Motorcycle Runs Saw 900
Mountain View in Norway, Sept. 15 cover.
Mud-wasp on Section 515
Moore, J. P. 266
Moving Bees on Cart in France 418
Moving Bees on Camel 417, 418
Moving on Auto Truck 414, 426
Moyer, J. J., and Observatory Hive, June 15 cover.
Nailing Jig 452
National Convention 228
Norwegian Stone 724
Nucleus-yard, Root Co.'s, Florida, July 15 cover.

Numbering Hives in Apiary 712, 713
Observatory Hive, June 15 cover.
Observatory Hive, Moyer 460
Oil Palm 378
Orchard Apiary 110
Orchard, Apiary in 105, 106
Ornamenal Hive 380
Osborne, Fred E. 231
Outdoor Colony of Bees 984, 985
Palm Oil 378
Paper-wrapped Hive 19
Paste to put on Labels....................802
Peach Tree Blossomed in Cold Weather........ 99
Peach Tree, Pollinated by Bees............... 98
Pear Tree in Blossom 102
Pines in Bluejay Canyon 134
Pollen, Rye Chop Substitute for 297
Potato, Large, Grown by A. I. Root..........917
Potatoes in Florida 316, 317
Poultry and Bee-yard 13
Poultry, Gebardt's 20
Poultry-house and Apiary, Wixson............ 16
Poultry-house, Bartlett's 18
Poultry-house, Bartlett's, January 1 cover.
Poultry-houses, Warner's 14
Poultry, Mrs. Larsen 23
Poultry Plant, A. I. Root 357, 358, 359
Poultry Plant, Bartlett's 17
Queen, Clipping of 272
Queen, Drone, and Worker, April 1 cover.
Queen, Drone-laying 309
Queen-cells Grafted by Little Girl........938, 939
Rainbow Corn 784
Record-keeping in Apiary 712, 713
Repp, Charlie 347
Robbing, Shafer's Device for 998
Robbing, Wholesale 633
Roof, Outlaw's Bees on 302
Roosts, Collett's Removable 32
Root, A. I., and Old Windmill, Nov. 1 cover.
Root, C. H. 211
Roof Apiary 168, 169, 170, 171, 172, 173
Saw, Hutchinson's Home Made 502
Saw Run by Motorcycle 900
Saw, Wilson's Foot-power 143
Selling Honey from Automobile 425
Shade-board of Australian Bark 857
Shallard, Phil, on Bicycle 507
Sheep Keep Down Grass 719
"Skeppist," English 588
Smoker in Proper Condition 511
Smoker, Self Extinguishing 509
Skinner System of Sprinkling 782
Smoker with Match-holder 912
Snowberry 896
Spacing Device for Frames 912
Sponge to Hold Water in Mailing-cage........819
Sprinklers, Skinner System 782
Steamer with Bees in Florida 410, 411, 412
Stevenson, Mr. and Mrs. John 258
Story without Words 893
Straw Hives on Wagon 421
Straw Skep, Dutch 804, 805
Super, Gressman 214
Super Made of Winter Case 818
Super Made of Old Crock 850
Swarm-catcher, Malachowski's 542
Swarm Caught in Act of Leaving 628
Swarm on Child's Wagon 142
Swarm in Three Clusters 992
Swarm, Mammoth 508
Swarm on Wire Fence 141
Sweet Clover, Nodule on Root 463
Sweet Clover, Rank Growth 462
Sweet Clover, Yellow, in Oklahoma...........937
Tanton, Ellinor 989
Thyme, or Summer Savory 591
Top-bars, Horizontal Opening through.......1000
Top-bars, Mundell's Apparatus for Setting Wedges in 999
Transferring from Bee Tree 990
Transferring, Marchant's Scheme 345, 346
Tree, Bees Taken from 219
Tree, Bees in 990
Tree Hive 59
Tree with Bees, Largest in World....375, 376, 377
Trees, Too High for Swarms..................339
Turnbow, Novella 809
Veil, Peterson's Improvement 305
Wanted, a Bright Boy 825
Ward, E. G., in Apiary 636
Water in Mailing-cage 140, 517
Water in Mailing-cage, Sponge to Hold........819
Watering Bees on Boat 412
Wax-press, $1.00 820
Wax Press, Hutchinson's 503
Wedges in Top-bars, Mundell's Apparatus for..999
White Clover, Second Crop 499
Windmill, A. I. Root's Original..........854, 855
Windmill, A. I. Root's, Nov. 1 cover.
Winter Case, A. C. Ames 889, 890, 891
Winter Case, Bowden's 681
Winter Case, Holtermann 665, 666, 667, 668
Winter Case, Mills 175
Winter Cases of Drygoods Boxes 675
Winter Case, Stevens 981, 982
Winter Case Used as Super 818
Winter, Hive Wrapped in Paper for.......... 19
Wire Fence, Swarm on 141
Wiring, A. C. Miller's Plan 453, 454
Wiring, Gorton's Plan for 897
Wood-swallow of Australia 934, 935
Woodworth, C., of Wyandotte, Mich 982
Writing-pad Cover 111
Yellow Sweet Clover in Oklahoma.............937
Young, H. C. 180

CONTRIBUTORS

Achord, W. D...............265
Acklin, Mrs. H. G. 647
Adams, L. Wayne 757
Adamson, T. G. 905
Addison, R. 360
Allen, Grace 648, 680, 724, 776, 820, 868, 908, 956, 996
Allen, O. G. 807
Allen, Mrs. Susan E. 691
Alpaugh, J. 785, 941
Ames, A. C. 889
Ammons, Jas. 648
Anderson, A. G. 808
Anthony, Stephen 647
Anthony, A. B. 605
Archdekin, J. F. 270, 354
Bachler, Jas. 311
Baier, Jos. G. 858
Baird, J. O. 154
Bakula, J. 221
Baldensperger, Ph. J. 414
Banks, J. Ivan 154
Barlow, J. B. 232
Barnes, Wm. 776
Barstow, W. A. 153, 441, 517
Bartlett, Ira D. 584
Bartlett, W. R. 17
Baumbach, Carl 803
Beeman, The 31
Bell, A. H. 195
Bell, Harry 354, 953
Bender, C. F. 261, 429
Beucus, Wm. 462, 800
Beuhne, F. R. 66
Bigelow, Edw. F. 930
Black, J. W. 475, 476
Blackburn, B. 859
Bohon, Henry S. 154
Bolton, Thomas 819
Bond, E. T. 560
Bonny, Dr. A. F. 694, 895
Bordon, Alonzo 1000
Boswell, S. W. 513, 956
Bout, C. Vanden 154
Bowden, Chas. 681
Bowen, A. H. 516, 587
Bowen, J. T. 152, 397
Bowen, U. H. 598
Bray, W. B. 517
Brearley, Douglas D. ...648, 868
Brewer, John M. 399, 481
Brewster, B. 668
British Experts 983
Broomall, Frank 689
Brown, Charlie A. 862
Brown, Jas. G. 641
Bruennich, Dr. 377
Brumfield, J. P. 73, 1000
Buchanan, J. M. 224, 432
Bucher, C. F. 313
Budd, Thos. D. 195, 434
Bull, John C. 775
Bullamore, G. W. 552
Bullock, E. D. 234
Bunch, C. A. 693
Bunnell, S. E. 687
Burgard, J. T. 434
Burton, S. H. 98, 515
Burton, S. H. 765, 815, 867
Butler, Frank 906
Byer, J. L. 145, 337, 673
Byington, Steven T. 809
Calcutt, M. Y. 498
Calkins, J. H. 38
Caraway, B. M. 263
Cargo, Chas. H. 817
Carling, Alfred 469
Carmona, Carlos M. 65, 912
Carr, E. G. 63, 67, 211, 471, 639, 684, 759, 846
Carter, J. M. 912
Cary, L. G. 14
Case, J. B. 260
Case, Wm. W. 457
Cather, Bays D. 399, 860
Catterton, C. H. 647
Chadwick, P. C. 68, 134, 582
Chapman, S. D. 234
Cheney, C. D. 212, 868
Cheney, W. L. 142

City Beekeeper 931
Clare, F. P. 312, 986
Clark, A. N. 484, 555, 864
Clarke, F. H. 955
Climer, E. L. 481
Clute, C. H. 560
Coburn, John F. 433
Cole, E. M. 476
Cole, Fred 472
Collett, Chas W. 32
Collingwood, H. W. 480
Conklin, P. H. 394
Connor, F. A. 183
Cook, H. C. 394
Cooper, F. H. 944
Copenhaver, Dr. W. M. 191
Cowles, A. F. 236
Cozins, W. B. 844
Crabtree, F. A. 393
Crandall, A. G. 568
Crandall, A. E. 843
Crane, J. E. 549, 583
Crocker, S. G., Jr. 1000
Crovatt, L. W. 26, 220, 267, 464, 762
Danielson, Daniel 311
Darby, Mrs. W. T. 74
Davenport, S. 472
Davis, Ben G. 693
Day, H. Clay 234
Dayton, C. W. 693
Dean, Julia F. 400
Denham, Cora 481
Dennin, Albert W. 830
Dervies, Thomas 482
Dervishian, M.G. 271, 383, 517, 911
Desmond, G. G. 512
Devitt, A. M. 312
Dexter, V. V. 763
Dietzman, R. P. 109
Dillon, W. A. 196
Dix, L. V. 641
Doolittle, G M. 256, 526
Donahey, J. H. 184
Donaldson, J. M. 104
Dowling, Chas. E. 153
Dreyer, W. H. 341
Duax, E. A. 459
Dunn, L. J. 140
Dunton, Dr. W. A. 630
Ellet, Minnie J. 824
Engle, M. C. 820
Essenhower, Lee 172
Ewbank, John 735
Fairchild, F. E. 744
Farnsworth, W. W. 114
Farwell, Lewis P. 475
Ferry, D. S. 693
Finsted, Joseph 217
Fisbeck, J. H. 553
Fish, S. T. & Co. 599
Fisher, Ralph P. 691
Fitch, J. H. 476
Flanagan, E. T. 200
Fooshe, J. D. 813
Foster, Frank M. 849
Foster, Wesley 253, 349, 401, 548, 579, 732, 798
Fowler, C. E. 34, 955
Fox, Elias, ...313, 559
Fox, E. W. 941
Frankson, O S. 999
Fraser, W. D. 196
Frazier, E. C. 74
French, Geo. J. 149
French, J. G. 234
Gardiner, N. Fred 381
Garee, F. A. 648
Gates, Burton N. 103, 734
Gault, W. C. 160
Gaylord, L. E. 942
Gebhardt, C. H. 20
Gieck, Wm. 938
Gifford, Ruth C. 18, 339
Gill, M. A. 389
Gilbert, A. C. 99, 466, 734
Gilstrap, W. A. H. 190, 266
Gomme, Wm. 158
Gorton, F. R. 897
Grace, Frank A. 999
Gray, Frank A. 776
Gray, Josie 353
Gravely, F. W. 694
Green, James A. 455, 974
Greiner, F. 340, 386, 589
Greiner, T. 483, 568, 656
Gresham, E. F. 442
Gressman, Elmer 214
Griffin, W. E. 393
Gunn, Edwin O. 694
Gunther, Geo. F. 233
Guy, E. E. 518
Hadzor Bros. 114, 256
Haines, G. W. 272, 812, 912
Hake, Chas Y. 350, 627, 850
Halter, A. J. 719
Hand, J.E., 10, 210, 292, 670, 771, 805, 860, 906, 949, 997, 998
Hanly, J. Frank 437
Happy Wife, A 912
Harper, Arthur T. 311
Harrington, Edwin E. 200, 481
Harrington, H. E. 956
Harris, C. M. 643
Harris, E. A. 628
Hart, Bird 394
Hart, Delos O. 313
Hastings, Byron S. 938
Hausz, F. G. 1000
Hawden, L. F. 298
Hawkins, Kenneth 274
Heberle, J. A. 132, 460, 538, 596, 624, 689, 810, 904
Henderson, Samuel 480
Henry, C. P. 723
Herrod, W. 57
Hershey, N. G. 279
Hershiser, O. L. 29, 331, 991
Heverly, Chas. 693
Hewes, W. G. 74
Hibben, T. T. 955
High, S. W. 394
Hill, Chas. B. 916
Hill, Frank 516
Hill, Lillian L. 646
Hinton, Elmer E. 394
Hirsch, Harry 168
Hitchcock, A. Lyndon 232
Hobson, W. H. 231
Hodgson, Arthur F. 640
Hoevel, P. J. 476
Hollander, Otto 310, 770
Hollingsworth, Albert 477
Holtermann, R. F. 56, 114, 254, 308, 330, 369, 467, 581, 665, 688, 733, 802, 806, 892
Hooper, F. A. ..113, 256, 518, 693
Hopkins, H. D. 182
Hopkins, I. 594, 912
House, S. D. 582
Hovind, Harold 117, 724
Howard, I. N. 956
Howden, L. F. 298
Howen, L. F. 298
Howell, Chas. 151
Howell, D. W. 113
Hugentobler, R. C. 820
Huggins, F. L. 908
Hunter, R. B. 234
Huntington, Geo. M. 215, 518
Hurst, Kos 433
Hutchinson, Elmer 500, 772
Iltis, J. 819
Irish, Arnold, ...430
Jackson, H. S. 299
Jacques, F. M. 912
James, A. J. 143, 933
Jenkins, Allen 785
Johansen, Julius 102
Johnson, F. D. 195
Johnson, James S. 465
Johnson, J. E. 910
Johnson, Walter M. 901
Johnston, J. C. M. 229
Jones, B. 998
Jordan, Albert 394
Jordan, J. E. 266, 764
Kaufman, M. J. 606
Kazmeier, Oscar 479
Keach, E. P. 278
Kearney, Matthew 606
Keefer, John E. 996
Kille, Harris T. 173, 276
Kinney, Frank F. 233
Kinsey, C. A. 23, 385
Kinzie Chas S. 820
Kinzie, J. M. 473
Kirkpatrick, Geo. H. 593, 599
Klinger, Fred 647
Klinger, H. C. 382
Knowlton, H. P. 434
Koepfgen, Fred 135
Kolle, Herbert A. 318
Ladd, E. J. 736, 952
Lamkin, Lewis 113
Lamming, Mrs. W. E. 657
Landrum, T. J. 335
Langhor, Frank 195
Lathrop, Harry 225
Lee, A. W. F., Sr. 1000
Lee, F. J. 687
Lee, Theo. 426, 628
LeMay, L. C. 849
Leonard, L. D. 725
Lesser, F. W. 230
Lewis, Rev. J. M. 374
Lewis, W. H. 24
Lhommedieu, D. E. 518, 802
Lincoln, LeRoy 468
Lindemuth, C. E. 34
Lineback, J. C. 606
Lishman, M. A. 516, 669
Live Oak Apiary 993
Lively, W. I. 645
Losh, W. A. 33
Lossing, Wm. 434
Louder, Geo. W. 312, 686, 910
Lovejoy, W. L. 518
Lovell, John H. 598, 721, 994
Lutes, James I. 434
Macdonald, D. M. 192, 728
Major, John 36
Malachowski, Auguste de....540
Manley, B. A. 508, 998
Marchant, J. E. 138
Marten, Herbert 909
Martin, P. P. 354
Martine, J. P. 194, 387
Martine, L. D. 193
Massie, T. K. 626
Matheny, W. A. 445
Matson, S. A. 736
Matthes, Hans 804
McCarty, C. A. 476
McClanahan, A. J. 301
McCormick, W. H. 233, 720
McCurdy, J. R. 195
McGuire, A. B. 819
McIntyre, Flora 711
McKisson, R. E. 313
McLendon, H. A. 979
McNair, W. G. 597
Meredith, J. E. 153
Merwin, J. B. 514, 590
Metcalfe, O. B. 556
Mettler, T. H. 313
Meyers, Amos E. 274
Michael, J. C. 433
Michener, Ila K. 816
Miles, E.S. 147, 249, 427, 554, 946
Miles, Herbert 111
Miller, A. C. 50, 268, 290, 370, 452, 495, 537, 717, 736, 761, 818, 842, 977
Miller, C. C. ..311, 337, 470, 481, 730, 775, 776, 811, 888, 909
Miller, C. H. 311
Miller, C. and W. 648
Miller, E. S. 813
Miller, Hamlin B. 185
Miller, H. Bartlett 551
Miller, J. M. 605
Miller, W. L. 213
Millican, D. C. 196
Mitchell, A. S. 385
Mittower, Ray 373
Moody, Dr. H. A. 868
Moody, W. R. 524
Moore, Geo. W. 956
Morris, C. B. 59
Morris, G. E. 393
Mortenson, N. P. 234
Moses, W. H. 353
Mott, E. E. 384
Moyers, J. J. 459
Muckle, R. J. T. 148
Mulsow, Dr. Carl 106
Mundell, Jos. M. 999
Munger, A. D. 912

Murry, H. D. 234
Myer, F. C. 509
Myers, Fred 692
N., G. H. 480
Newell, E. C. 647
Newell, Edwin 955
Newsom, C. S. 181
Nichols, Earl M. 73
Nicholson, Albert G. 526
Nomma, K. 335
Norris, T. F. 72
Nusbaum, R. A. 393, 547
Offineer, G. A. 54
Ordway, H. E. 832
Osborne, Fred E. 231
Outlaw ...177, 222, 302, 351, 541, 864
Paine, Benjamin 110
Park, Otto A. 474
Parson, A. S. 434
Pearce, J. A. 32
Pease, G. Frank 425
Peasley, F. M. 744
Pellett, Frank C. 431, 550, 558, 754
Pennell, F. G. 518
Peschko, Robert 936
Peterson. J. H. 33, 305
Pettit, Morley 774
Phillips, Dr. E. F. 856
Pike, Claude C. 644
Piper, Dr. Chas. B. 299
Plummer, A. J. 648
Pollock, F. L. 392, 672, 999
Porter, James 910
Porter, W. L. 312
Powell, R. 899
Powers, Harry 39
Powers, S. 692
Pruitt, M. E. 31
Queue, Opie 768
Quirin, H. G. 258
Raesler, Mrs. Jos. 195
Ramage, J. B. 150
Randolph, W. N. 97, 333
Rankin, D. F. 195
Rayment, T. 934
Reddert, Henry 193, 638, 911
Reddout, Edw. A. 475
Reaves, P. S. 942
Rees, Cary W. 633
Reese, John S. 557
Reeves, Mrs. J. T. 228
Rexford, O. S. 687
Rice, C. V. 845
Rich, Ed. E. 954
Rice, L. F. 518
Richter, Frank 716
Rising, John H. 114
Ritland, Oscar 899
Roberts, David 273, 954
Robinson, E. P. 148
Robinson, T. P. 58, 867, 910
Rodman, A. T. 187, 818
Roebling, John E. 232
Rogers, Arthur W. 114
Rohrer, Fred 435
Root, E. R. 62, 69, 305, 345, 504, 678, 758
Root, Homer H. 656
Root, H. H. 27, 100, 410
Rosenquist, Adolph C. 274
Ross, Albert J. 998
Rouse, J. W. 95, 830
Rowley, A. 990
Rumsey, Herbert J. 956
Running, David 31
Rusk, Chas. 518
Rycraft, Dale 74
Satterfield, R. S. 01
Schafer, Philip 441
Schmidt, B. F. 943
Scholl, Louis H. 585
Scott, Harold W. 274
Scranton, F. C. 755
Selwyn, H. Harley 676
Shafer, Lewis M. 998
Shallard, Phil 506
Shallard, Major 388, 506, 517, 683, 694, 732, 817, 857, 995
Shearer, C. A. 911
Shiber, George 113, 988
Shollenberger, H. B. 997
Silsbee, M. C. 196
Simmon, Dr. L. A. ..858, 901, 989
Small, A. V. 141
Smallwood, John 56, 948
Smedley, N. 292
Smith, Carlos 817
Smith, C. R. 592
Smith, Jay 631, 975
Smith, L. K. 238
Smith, Ralph A. 956
Snowberger, H. H. 21
Sommer, Anna 986
Sommer, Chas. L. 113
Soper, Irma True 153
Sowinski, P. W. 956
Spencer, R. M. 259
Spracklen, A. W. 312
Steers, Alson W. 736
Stevens, C. A. 692
Stevens, S. Geo. 981
Stewart, Henry 560
Stewart, W. H. H. 434
Stine, J. W. 144, 232, 756
Stockman, Mrs. S. H. 25
Strang, H. F. 420
Subscriber 32, 153, 820
Surface, Prof. H. A. 93, 293
Swahn, A. 979
Sweeney, J. 819
Tanton, L. P. 989
Tate, Fred 232
Teare, W. A. 1000
Tedder, A. J. 394
Tetu, James G. 33
Thomson, D. M. 543
Thompson, Dr. W. L. 239
Thompson, R. 234
Thorne, Chas. E. 700
Timoney, R. E. 820
Todd, F. Dundas 51
Townds, R. H. 647
Turner, F. F. 692
Tyler, Fred 31
Upson, E. H. 25
Van de Mark, F. W. 937
Van Rensselaer, J. L. 94
Vedder, Guy N. 317
Veteran, a New England 91
Wagner, A. F. 137, 154
Walker, Dr. H. L. 997
Waller, S. T. 699
Wanty, C. 280
Ward, E. G. 154, 413, 635
Watt, Robert. 648, 868
Waugh, P. E. 939
Webster, Geo. F. 150
Wells, L. W., Sr. 681
West, Ernest 950
Wheeler, A., Jr. 692
Whedon, D. D. 868
White, A. B. 400
Whitten, Geo. T. 22, 139
Whitman, Dwight ...32, 685, 984
Wilcox, Ray C. 428
Wilder, J. J. ..342, 584, 815, 894
Willett, N. L. 399
Williams, Arthur 251
Williams, Bert 73
Williams, George W. 233, 354
Williams, R. J. 74
Willis, G. B. 393
Willis, G. T. 310
Wilsey, James W. 218
Wilson, Clark W. 515
Wilson, E. 31
Wilson, Rev. J. W. 312
Winship, Lewis L. 676
Wixson, Roscoe F. 15
Wolfe, Austin D. 219
Woodward, D. L. 423, 851
Woodworth, C. W. 987
Woolley, Wm. J., Jr. 112
Worley, T. A. 234
Wurtzel, Edw. 73
Young, H. C. 180
Young, R. A. 39, 158
Yates, A. W. 390
Yocum, Trell W. 239
York, W. D. 232, 434
Zautner, George 176
Zeitler, Willis N. 234

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